SAFETY DATA SHEET

1. CHEMICAL IDENTIFICATION AND COMPANY INFORMATION

PRODUCT NAME: 2,4-Dichlorophenoxyacetic Acid Solution (1 mg/mL)
PRODUCT NUMBER: D295
COMPANY INFO: PhytoTechnology Laboratories®
PO Box 12205, Shawnee, KS 66282-2205
Phone: 1-888-749-8682 or 1-913-341-5343; Fax: 1-888-449-8682 or 1-913-341-5442
www.phytotechlab.com

EMERGENCY PHONE NUMBER
(INFOTRAC): 1-800-535-5053 - US Only
1-352-323-3500 - International

RECOMMENDED USE: For Research Use Only

RESTRICTIONS ON USE: Products sold by PhytoTechnology Laboratories® are intended for research and laboratory use only. Products are not to be used as human or animal therapeutics, cosmetics, agricultural or pesticidal products, food additives, or as household chemicals.

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

GHS Classification:
- H290 – Corrosive to Metals (Category 1)
- H314 – Skin corrosion (Category 1A)
- H318 – Serious eye damage (Category 1)

GHS Label elements, including hazard and precautionary statements:

Pictogram: 
Signal Word: Danger

Hazard Statements:
- H290 – May be corrosive to metals
- H302 – Harmful if swallowed
- H314 – Causes severe skin burns and eye damage

Precautionary Statements:
- P273 – Avoid release to the environment.
- P280 – Wear protective gloves/protective clothing/eye protection/face protection.
- P302 + P352 + IF ON SKIN: Wash with plenty of soap and water
- P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Hazards not otherwise classified (HNOC) or not covered by GHS: - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: 2,4-D
CAS No.: 94-75-7
Formula: C₈H₆Cl₂O₃
Molecular Weight: 221.04 g/mol

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-Dichlorophenoxyacetic Acid</td>
<td>94-75-7</td>
<td>0.1 %</td>
<td>ACGIH TLV: 10 mg/m³; OSHA PEL: 10 mg/m³</td>
</tr>
<tr>
<td>Potassium Hydroxide 1.0 N</td>
<td>1310-58-3</td>
<td>1.5 %</td>
<td>ACGIH TLV: 2 mg/m³</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>94-99 %</td>
<td>No exposure limits established by OSHA or ACGIH</td>
</tr>
</tbody>
</table>

Product No: D295
4. FIRST AID MEASURES

General Advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

<table>
<thead>
<tr>
<th>Route of Entry</th>
<th>Symptoms</th>
<th>First Aid Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>May cause irritation if swallowed</td>
<td>If swallowed, wash out mouth with water. Never give anything by mouth to an unconscious person. Get medical attention.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>May cause irritation to respiratory tract</td>
<td>Safely remove victim to fresh air. If not breathing, institute cardiopulmonary resuscitation (CPR). If breathing is difficult, ensure clear airway and give oxygen. Get medical attention.</td>
</tr>
<tr>
<td>Eye Contact</td>
<td>Direct contact may cause irritation. May cause redness, tearing, or blurred vision.</td>
<td>Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation persists.</td>
</tr>
<tr>
<td>Skin Contact</td>
<td>Irritating. May cause reddening, itching or inflammation.</td>
<td>Wash area thoroughly with soap and water. Remove and wash contaminated clothing. Get medical attention if irritation persists.</td>
</tr>
</tbody>
</table>

Most Important Symptoms or Effects, Both Acute and Delayed:

See section 2 and/or section 11

Recommendation for Immediate Medical Care and Special Treatment Needed:

No data available

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Water spray, carbon dioxide, dry chemical powder, or appropriate foam. Use extinguishing media suitable for surrounding fire.

Special Protective Equipment and Precaution for Firefighters: In the event of a fire, wear full protective clothing and NIOSH approved self-contained breathing apparatus. Evacuate the area and fight fire from a safe distance.

Hazardous Combustion Products: No data available

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:

Use personal protection recommended in Section 8. Avoid breathing vapours, mist or gas. Ensure adequate ventilation, especially in confined areas. Evacuate personnel to safe areas.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Method of Containment and Cleanup: Clean-up personnel should wear proper protective equipment and clothing. Contain spilled material and do not let product enter drains. Soak up with inert absorbent material and place in a suitable, closed container for disposal in accordance with all local, state/provincial, and national requirements. Ventilate the area if necessary.

7. HANDLING AND STORAGE

Precaution for Safe Handling: Avoid contact with skin and eyes. Avoid incompatible substances. Wash thoroughly after use.

Conditions for Safe Storage: Keep in a tightly closed container and store in a cool, dry, and well-ventilated area.

Incompatibilities: Strong oxidizing agent

Recommended Storage Temperature: 2-6°C
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA’s Permissible Exposure Limits (PELs): 10.0 mg/m$^3$
ACGIH’s Threshold Limit Values (TLVs): 10.0 mg/m$^3$

Engineering Controls: Handle in accordance to general industrial hygiene and safety practice.

Personal Protective Equipment (PPE):

Eye/Face Protection: Chemical safety glasses or goggles. Have eye-washing facilities readily available where eye contact can occur.
Skin Protection: Protective gloves
Body Protection: Lab coat
Respiratory Protection: Respiratory protection is not required. Use N95 (US) or type P1 (EN 143) dust mask where dust level is nuisance. A NIOSH/MSHA approved air purifying respirator is recommended where airborne concentrations are expected to exceed exposure limits. Protection provided by purifying respirators is limited.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colorless, clear liquid
pH (1.00 mL/L): No data available
Solubility: Miscible with water
Melting Point: 136 – 140 °C
Vapor Density: No data available
Vapor Pressure: No data available
Odor: Odorless
Odor Threshold: No data available
Viscosity: No data available
Relative Density: No data available
Evaporation Rate: No data available
Initial Boiling Point and Boiling Range: No data available
Flammability (solid, gas): No data available
Partition coefficient: n-octanol/water): No data available
Auto-ignition Temperature: No data available
Decomposition Temperature: No data available
Flash Point (Closed Cup): No data available
Flammable Limits: Upper (%) – No data available Lower (%) – No data available

10. STABILITY AND REACTIVITY

Reactivity: No data available
Chemical Stability: Stable under normal conditions of use
Possibility of Hazard Reactions: No data available
Conditions to Avoid: No data available
Incompatibles Materials: Strong oxidizing agents
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide

11. TOXICOLOGICAL INFORMATION

Information reported is for powder form of 2,4-D
Toxicity: LD₅₀ (Oral-Rat)(mg/Kg): 375
LD₅₀ (Dermal-Rabbit)(mg/Kg): 1,400

Carcinogenicity: NTP: No
IARC: Group 2B: Possibly carcinogenic to humans (2,4-d)
OSHA Reg: No

Reproductive Toxicity: No data available

Specific Target Organ Toxicity:
Single Exposure: No data available
Repeated Exposure: No data available

Target Organs: No data available

Routes of Entry: Ingestion, inhalation, skin or eye contact

NIOSH/RTECS NO: AG6825000

*The toxicological properties of this product have not been thoroughly investigated*

12. ECOLOGICAL INFORMATION
Ecotoxicity: No data available
Persistence and Degradability: No data available
Bioaccumulative Potential: No data available
Mobility in Soil: No data available
Other Adverse Effects: No data available

13. DISPOSAL CONSIDERATION
Disposal Procedure: Dispose in accordance with all applicable federal, state, and local environmental regulations.

EPA Hazardous Waste Number: D016 (2,4-D)

14. TRANSPORT INFORMATION
Domestic (D.O.T.):
Proper Shipping Name: CHEMICALS, N.O.S. (NON-REGULATED)
Hazard Class: N/A
UN/NA: N/A
Labels: N/A

International:
IMDG:
Proper Shipping Name: CHEMICALS, N.O.S. (NON-REGULATED)
Hazard Class: N/A
UN/NA: N/A
Labels: N/A

IATA:
Proper Shipping Name: CHEMICALS, N.O.S. (NON-REGULATED)
Hazard Class: N/A
UN/NA: N/A
Labels: N/A

15. REGULATORY INFORMATION
TSCA: Yes

SARA TITLE III:

Section 302 (EHS) Ingredients: No
Section 313 Ingredients: No
Section 304 (EHS/CERCLA) Ingredients: 2,4-D
Section 311/312 Hazard: Acute Health Hazard, Chronic Health Hazard

Massachusetts Right to Know Components: CAS No.: 94-75-7 2,4-Dichlorophenoxyacetic acid
Pennsylvania Right to Know Components: CAS No.: 94-75-7 2,4-Dichlorophenoxyacetic acid
New Jersey Right to Know Components: CAS No.: 94-75-7 2,4-Dichlorophenoxyacetic acid
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.

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>HMIS Rating:</th>
<th>Health Hazard</th>
<th>Flammability</th>
<th>Physical Hazard</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>B</td>
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</table>

<table>
<thead>
<tr>
<th>NFPA Rating:</th>
<th>Health Hazard</th>
<th>Fire Hazard</th>
<th>Instability</th>
<th>Special Hazard</th>
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<tbody>
<tr>
<td></td>
<td>2</td>
<td>0</td>
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Revision Date: 20 June 2017