1. **SECTION 1: Identification of the hazardous chemical and of the supplier**

1.1 **Product identifiers**

Product name: 2,4-Dichlorophenoxyacetic acid

Product Number: D70724

Brand: Aldrich

1.2 **Other means of identification**

2,4-D

1.3 **Recommended use of the chemical and restrictions on use**

For R&D use only. Not for pharmaceutical, household or other uses.

1.4 **Details of the supplier of the safety data sheet**


A-07-11, Empire Office, Empire Subang

Jalan SS16/1, SS16

47500 SUBANG JAYA-SELANGOR DARUL EHSAN

MALAYSIA

Telephone: +60 (603) 563 53321

Fax: +60 (603) 563 54116

1.5 **Emergency telephone number**

Emergency Phone #: 1-800-262-8200

2. **HAZARDS IDENTIFICATION**

2.1 **Classification of the hazardous chemical**

**Classification according to CLASS regulations 2013**

Acute toxicity, Oral (Category 4)

Serious eye damage/eye irritation (Category 1)

Skin sensitisation (Category 1)

Specific target organ toxicity - single exposure (Category 3), Respiratory system

Hazardous to the aquatic environment - chronic hazard (Category 3)

2.2 **Label elements**

**Labelling according to CLASS regulations 2013**

Pictogram

Signal word: Danger

Hazard statement(s)

H302 Harmful if swallowed.
May cause an allergic skin reaction.
Causes serious eye damage.
May cause respiratory irritation.
Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response
P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
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 or doctor/ physician.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

2.3 Other hazards - none

3. SECTION 3: Composition and information of the ingredients of the hazardous chemical

3.1 Substances
Chemical identity

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-Dichlorophenoxyacetic acid</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>94-75-7</td>
</tr>
<tr>
<td>EC-No.</td>
<td>202-361-1</td>
</tr>
<tr>
<td>Index-No.</td>
<td>607-039-00-8</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

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

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
4.2 Most important symptoms and effects, both acute and delayed
Nausea, Vomiting, Weakness, Dizziness, Headache, Sweating, Exposure to large amounts can cause;
Ataxia, Convulsions

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

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
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
Light sensitive.

7.3 Specific end use(s)
No data available

8. Exposure controls and personal protection

8.1 Control parameters
Permissible exposure limit

### Exposure controls

#### Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protective equipment

**Eye/face protection**
Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with 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.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

**Body Protection**
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Thermal hazards**
No data available

### PHYSICAL AND CHEMICAL PROPERTIES

#### Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-Dichlorophenoxyacetic acid</td>
<td>94-75-7</td>
<td>TWA</td>
<td>10 mg/m3</td>
<td>Malaysia. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000.</td>
</tr>
</tbody>
</table>

9.2 Exposure controls

9.1 Information on basic physical and chemical properties

| a) Appearance | Form: powder  
|               | Colour: light brown |
| b) Odour      | No data available  |
| c) Odour Threshold | No data available |
| d) pH         | No data available  |
| e) Melting point/freezing point | Melting point/range: 136 - 140 °C - lit. |
| f) Initial boiling point and boiling range | 160 °C at 1.013 hPa |
| g) Flash point | No data available  |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | No data available |

Aldrich - D70724
j) Upper/lower flammability or explosive limits
   No data available

k) Vapour pressure
   < 1,00 hPa at 20 °C

l) Vapour density
   No data available

m) Relative density
   No data available

n) Water solubility
   insoluble

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

p) Auto-ignition temperature
   No data available

q) Decomposition temperature
   No data available

r) Viscosity
   No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
   No data available

10.2 Chemical stability
   No data available

10.3 Possibility of hazardous reactions
   No data available

10.4 Conditions to avoid
   No data available

10.5 Incompatible materials
   Strong oxidizing agents, Copper, Iron and iron salts.

10.6 Hazardous decomposition products
   Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 375 mg/kg
Inhalation: No data available
LD50 Dermal - Rabbit - 1.400 mg/kg
Remarks: Behavioral: Ataxia. Skin irritation

Skin corrosion/irritation
Skin - Rabbit - Mild skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit - Severe eye irritation - 24 h

Respiratory or skin sensitisation
No data available
May cause sensitisation by inhalation.

Germ cell mutagenicity
No data available
Carcinogenicity
This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (2,4-Dichlorophenoxyacetic acid)

Reproductive toxicity
Laboratory experiments have shown teratogenic effects.

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Potential health effects
- **Inhalation**: May be harmful if inhaled. Causes respiratory tract irritation.
- **Ingestion**: Harmful if swallowed.
- **Skin**: Harmful if absorbed through skin. May cause skin irritation.
- **Eyes**: Causes eye burns.

Signs and Symptoms of Exposure
Nausea, Vomiting, Weakness, Dizziness, Headache, Sweating, Exposure to large amounts can cause; Ataxia., Convulsions

Additional Information
RTECS: AG6825000

12. **ECOLOGICAL INFORMATION**

12.1 Ecotoxicity
- Toxicity to fish: LC50 - Salmo salar (Atlantic salmon) - 100 mg/l - 96,0 h
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h
- Toxicity to algae: Growth inhibition LOEC - Pseudokirchneriella subcapitata - 50 mg/l - 60 h
  - EC50 - Pseudokirchneriella subcapitata (green algae) - 0,024 - 0,026 mg/l - 96 h
  - mortality NOEC - Phyllospora comosa - 10 mg/l - 96 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Other adverse effects
Very toxic to aquatic life.
Avoid release to the environment.
13. **SECTION 13: Disposal information**

13.1 **Waste treatment methods**

**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**
Dispose of as unused product.

14. **TRANSPORT INFORMATION**

14.1 **UN number**

ADR/RID: 3077
IMDG: 3077
IATA-DGR: 3077

14.2 **UN proper shipping name**

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2,4-Dichlorophenoxyacetic acid)
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2,4-Dichlorophenoxyacetic acid)
IATA-DGR: Environmentally hazardous substance, solid, n.o.s. (2,4-Dichlorophenoxyacetic acid)

14.3 **Transport hazard class(es)**

ADR/RID: 9
IMDG: 9
IATA-DGR: 9

14.4 **Packaging group**

ADR/RID: III
IMDG: III
IATA-DGR: III

14.5 **Environmental hazards**

ADR/RID: yes
IMDG Marine pollutant: yes
IATA-DGR: yes

14.6 **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
No data available

14.7 **Special precautions for user**
No data available

15. **REGULATORY INFORMATION**

15.1 **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No data available

16. **OTHER INFORMATION**

**Further information**
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