# ADEQUATE 240 SL SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** **ADEQUATE 240 SL**
**Other identifier:** **Picloram 240 SL**
**Recommended use:** Herbicide
**Restrictions on use:** (Agriculture); May only be sold and used by a registered pest control operator.

**Supplier:** **Villa Crop Protection (Pty) Ltd.**
**Co. Reg. No.:1992/002474/07**
PO Box 10413
Aston Manor, 1630, South Africa
**Telephone:** (011) 3962233
**Fax:** (011) 3964666
**Website:** www.villacrop.co.za

**Emergency telephone numbers:**
**24 Hr Transport / Spill emergency no:**
(Hazcall24) +27 86 044 4411
(Client: Villa Crop Protection)
Griffon Poison Information Centre +27 82 446 8946
(Client: Villa Crop Protection)
**Poisoning Emergency telephone numbers:**
Griffon Poison Information Centre +27 82 446 8946
Poisons Information Centre +27 861 555 777

## 2. HAZARDS IDENTIFICATION

| UN GHS, Regulation EC 1272/2008 [EU-GHS/CLP] EU & SANS 10234:2008 | | |
|---|---|---|
| **Hazard classes** | **Hazard categories** | **H-statements** |
| **Health** | | |
| Inhalation | Acute Tox. 2 | H330 |

**The most important adverse effects:**
**Physiochemical effects:** None known.
**Human health effects:** Fatal if inhaled (Acute Tox. 2).

**Label elements:**

**Signal word:** Danger.
**Hazard statements:**
H330: Fatal if inhaled.
**Precautionary statements:**
P260: Do not breathe dust, fume, gas, mist, vapours, or spray.
P271: Use only outdoors or in a well-ventilated area.
P284: In case of inadequate ventilation wear respiratory protection.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316: Get emergency medical help immediately.
P403+P233: Store in a well-ventilated place. Keep container tightly closed.
P405: Store locked up.
P501: Dispose of content/container in accordance with local regulations.
**Other hazards:**
None known.
**Toxicity:**
Classification according to GHS: Category 2.

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Substance / Mixture:** Mixture.

| Chemical name | CAS | Conc. (m/v) | Classification EC 1272/2008 |
|---|---|---|---|
| Picloram (acid) | 1918-02-1 | 24% | Aquatic Chronic 3 (H412) |
| Ethylene glycol | 107-21-1 | <5% | Acute Tox. 4 (H302) |

## 4. FIRST AID MEASURES

Remove the victim from the area of exposure. Wash off remaining material with plenty of water. In the event of any complaints or symptoms, avoid further exposure. **Immediately consult a doctor.**

**Inhalation:** Remove person from contaminated area to fresh air and assist breathing as needed. Seek medical attention if irritation occurs. **Seek medical attention if you feel unwell after inhalation**.
**Skin:** Remove contaminated clothing and shoes. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Obtain medical attention if irritation persists.
**Eyes:** Flush eyes with clean water for at least 15 – 20 minutes. Lift eyelids to facilitate irrigation. If present,

remove contact lenses after 5 minutes and continue rinsing.
**Ingestion:** Seek medical attention or call a poison control centre for treatment advice. Do not induce vomiting unless instructed to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person. If the person is alert, rinse mouth thoroughly with water.
**Anticipated acute effects:** Fatal if inhaled.
**Anticipated delayed effects:** None known.
**Most important symptoms / effects:** None known.
**Advice to physician:** Treat symptomatically and supportively. No specific antidote known.

## 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Use carbon dioxide or dry chemical for small fires and water fog or foam for large fires.
**Unsuitable Extinguishing Media:** High volume water jet. Use a water jet only to cool heated containers.
**Specific hazards:** None known.
**Special fire-fighting procedures:** Remove spectators from surrounding area. Isolate the fire area and evacuate all personnel downwind of the fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Remain upwind of fire. Avoid inhaling hazardous vapours and fumes from burning materials. Remove container from fire area if possible and without risk. Do not use high volume water jet, due to contamination risk. Do not scatter the burning material. Water can be used to cool unaffected containers but must be contained for later disposal. Contain fire control agents for later disposal.
**Personal protective equipment:** Wear NIOSH / MSHA approved self-contained breathing apparatus and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions:** Avoid contact with eyes and skin. Do not breathe in spray mist/fumes or vapours. Ventilate area of spill or leak, especially in contained areas.
**Protective equipment:** Refer to Section 8 for personal protective equipment to be worn during containment and clean-up of a spill involving this product.
**Emergency procedures:** Alert firefighting personnel, evacuate unprotected personnel and animals.
**Environmental Precautions:** Prevent spilled product from entering sewers, waterways, or ground water.
**Methods and Materials for Containment:** Contain spilt product by diking area with sand or earth.
**Methods and Materials for Clean-up:** Cover contained spill with an inert absorbent material such as sand, vermiculite, earth or other appropriate material. Vacuum, scoop, or sweep up material and place the material into a clean, dry, sealable container. Label containers with the contents and dispose of according to local regulations. Do not place spilt material back in original container. Do not re-use spilt material. Collect washings and add to the drums already collected. Do not flush spilt material or washings into drains or waterways. To decontaminate the spill area, tools and equipment, wash with water and suitable detergent. See section 13 for disposal considerations.

## 7. HANDLING AND STORAGE

**Handling:**
**Precautions for safe handling:** Fatal if inhaled. Avoid contact with eyes and skin. Ensure adequate ventilation during handling and use. Do not handle broken packages without protective equipment. Immediately clean up spills that occur during handling. Keep containers closed when not in use. In the case of contact with the product refer to First Aid Measures – Section 4.
**General occupational hygiene:** Practice good hygiene when using this material. Wash hands before eating, drinking, chewing gum, smoking, using the toilet or applying cosmetics. Worker should shower at the end of each workday. Launder all clothing before it is re-used.
**Storage:**
**Conditions for safe storage:** Keep under lock and key and out of reach of unauthorised persons, children and animals. Store in its original, labelled container, tightly closed in an isolated, dry, cool and well-ventilated area. Do not store near heat, open flame, sources of ignition or hot surfaces. Not to be stored next to foodstuffs, feed, and water supplies. Avoid cross contamination with other pesticides and fertilisers.
**Incompatible substances and mixtures:** Refer to product label.
**Packaging material:** Plastic containers.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Permissible concentration**

| Components | Exposure limits | Type of exposure limit | Source |
|---|---|---|---|
| Picloram | 10 mg/m3 - Total dust.<br><br>5 mg/m3 - Respirable fraction. | 8-hour TWA | OSHA PEL. www.osha.gov |

**Engineering Controls:**
It is essential to provide adequate ventilation. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Local Exhaust: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OELs or other specified exposure limits. Local exhaust ventilation is preferred. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire and other applicable regulations.
**Personal Protective Equipment:**
**Respiratory Protection:** Respiratory protection is needed. If used in a poorly ventilated area (airborne concentrations exceed exposure limits), use a NIOSH approved, air-purifying respirator with cartridges / canisters approved for organic vapours.
**Hand Protection:** The use of chemically protective gloves e.g., PVC is recommended to prevent against skin contact.
**Eye Protection:** The use of chemical safety goggles is recommended to prevent against eye contact. Contact lenses are not protective eye devices.
**Skin and Body Protection:** Employees must wear appropriate protective clothing e.g., coveralls, (rubber) boots, hat and equipment to prevent repeated or prolonged skin contact with this product.
**Emergency eyewash:** Where there is any possibility that an employee's eyes may be exposed to this product, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Red liquid.
**Odour:** Faint odour.
**pH (1% aqueous dilution):** 7.0 to 9.0.
**Melting point:** Not available.
**Freezing Point:** Not available.
**Boiling Point:** 100°C.
**Flash Point:** >50°C.
**Flammability:** Non-Flammable.
**Upper / lower explosion limits:** Not available.
**Vapour Pressure (mm Hg):** 23 mmHg at 20°C.
**Relative Vapour Density:** Not available.
**Density / Relative density:** 1.16 g/cm3 at 20°C.
**Solubility:** Miscible.
**n-octanol / water partition coefficient:** Not available.
**Auto-ignition temperature:** Not available.
**Decomposition temperature:** Not available.
**Viscosity:** Not available.

## 10. STABILITY AND REACTIVITY

**Chemical stability:** The product is stable for two years at ambient temperature and pressure, under normal storage and handling conditions. Avoid storage under extreme temperatures and conditions. Store below 50 °C, preferably below 30 °C, and not for prolonged periods in direct sunlight.
**Reactivity:** None known.
**Possibility of hazardous reactions:** None known.
**Conditions to avoid:** Avoid excessive heat. Do not store near heat or flame.
**Incompatible materials:** Strong oxidizing agents: Bases and acids.
**Hazardous decomposition products:** If exposed on fire, may produce gases such as Hydrogen Chloride and Nitrogen oxides.

## 11. TOXICOLOGICAL INFORMATION

**ACUTE TOXICITY:**
**Oral $LD_{50}$** >14000 mg/kg (rat)
**Dermal $LD_{50}$** >8000 mg/kg (rabbit)
**Inhalation $LC_{50}$** (4h) >0.145 mg/ℓ (rat)
**Skin Irritation / Corrosion**: Not classified.
**Eye Damage / Irritation:** Not classified.
**Skin Sensitization:** Not classified.
**Respiratory Sensitization:** Not classified.
**Reproductive cell mutagenicity:** Not classified.
**Carcinogenicity:** Not classified.
**Reproductive toxicity:** Not classified.
**Specific target organ toxicity – single exposure:** Not classified.

**Specific target organ toxicity – repeated exposure:** Not classified.
**Aspiration hazard:** Not classified.
**Chronic Effects**: None Known.
**POTENTIAL ADVERSE EFFECTS:**
**Inhalation:** Fatal if inhaled.
**Ingestion:** None known.
**Other information**: None Known.

## 12. ECOLOGICAL INFORMATION

This product is not expected to be harmful to aquatic organisms.

**ECOTOXICITY DATA: Active ingredient.**

| | | |
|---|---|---|
| **Fish:** | | |
| $LC_{50}$ (96 h) | Rainbow trout | 8.8 mg/ℓ |
| | Bluegill sunfish | 26 mg/ℓ |
| **Daphnia:** | | |
| $LC_{50}$ (48 h) | | 44.2 mg/ℓ |
| **Algae:** | | |
| $EC_{50}$ (96 h) | *Pseudokirchneriella subcapitata* | 60.2 mg/ℓ |
| (120 h) | *Anabaena flos-aquae* | 38.2 mg/ℓ |
| **Birds:** | | |
| Acute oral $LD_{50}$ | Mallard ducks | >1944 mg/kg |
| Dietary $LC_{50}$ | Mallard ducks and bobwhite quail | >5000 mg/kg diet. |
| **Bees:** | | |
| ($LD_{50}$, µg/bee) | (oral), (contact) | >74 µg/bee. >100 µg/bee. |
| **Worms:** | | |
| $LC_{50}$ (14 d) | *Eisenia fetida* | >4475 mg/kg soil. |
| **Other aquatic spp.** | | |
| $LC_{50}$ | pink shrimps | 10.3 mg/ℓ |
| $EC_{50}$ (14 d) | Lemna gibba | 102 mg/ℓ |

**ENVIRONMENTAL EFFECTS**
**Based on information for the formulation / active ingredient(s)**
**Plants:** On plant surfaces, photodecomposition occurs, possibly with cleavage of the pyridine ring. For reviews of picloram in the environment, see M. Mayes & G. R. Oliver, An Aquatic Hazard Assessment: Picloram, *Aquatic Toxicology and Hazard Assessment: Eight Symposium*, ASTM STP 891, in R. C. Bahner & D. J. Hasen, eds., American Society for Testing and Materials, Philadelphia, 1985, pp. 253–269, and *Picloram: the Effects of its Use as a Herbicide on Environmental Quality*, National Research Council of Canada, Ottawa, Canada, K1A 0R6, Publication No. NRCC 13684 of the Environmental Secretariat, 1974, 128 pp.
**Persistence and degradability:** Quickly degraded by light, in clear water or on plant surfaces. Degraded moderately slowly to slowly by soil micro-organisms, typical field $DT_{50}$ 30–90 d. Rate of degradation in soil strongly proportional to application rate. Aqueous photodegradation $DT_{50}$ <3 d.
**Bio-accumulative potential:** Not determined.
**Mobility in soil:** Not determined.
**Other adverse effects:** Not determined.

## 13. DISPOSAL CONSIDERATIONS

**Waste:** Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused or re-processed. Never pour untreated waste or surplus product into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers. Comply with local legislation applying to waste disposal. The product may be taken to a registered waste disposal site or incineration plant.
**Container:** TRIPLE RINSE THE EMPTY CONTAINER AS FOLLOWS: Invert the empty container over the spray or mixing tank and drain for at least 30 seconds after the flow has slowed down to dripping. Thereafter rinse the empty container three times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Puncture the triple rinsed container and dispose of via an approved collector or recycler (www.croplife.co.za). Do not bury, burn or donate the container to any other parties that may use it as a container for food or beverages.

## 14. TRANSPORT INFORMATION

**UN Number: 2902**
**Road Transport ADR / ORD:**
Class: 6.1

Packaging group: I
UN Proper Shipping Name: Pesticide, Liquid, Toxic, N.O.S. (**Picloram 240 g/ℓ**)

**Maritime Transport IMDG / IMO:**
Class: 6.1
Packaging group: I
UN Proper Shipping Name: Pesticide, Liquid, Toxic, N.O.S. (**Picloram 240 g/ℓ**)

**Marine pollutant (Y/N): NO**
**Air Transport IATA / ICAO:**
Class: 6.1
Packaging group: I
UN Proper Shipping Name: Pesticide, Liquid, Toxic, N.O.S. (**Picloram 240 g/ℓ**)

**Special / Environmental Precautions:** Wedge drums tightly to avoid movement.
**Transport in bulk:** Refer to MARPOL 73/78, Annex II and the IBC code.

## 15. REGULATORY INFORMATION

**Safety, health and environmental regulations / legislation for the mixture:**
OHSA 1993 Regulations for Hazardous Chemical Substances.
**Relevant information regarding restrictions:** None.
**EU regulation:** Regulation EC1272/2008 (EU-GHS/CLP)
**Other national regulations:** None.
**Chemical Safety Assessment carried out?** No

## 16. OTHER INFORMATION

**Packaging:** Packed in 1, 2, 5, 10, 20, 25, 50 litres plastic containers, labelled according to South African regulations and guidelines.
**Other hazard statements, abbreviations and explanations:**
**H302:** Harmful if swallowed.
**IATA:** International Air Transport Association.
**IBC:** International Bulk Chemical.
**ICAO:** International Civil Aviation Organization.
**IMDG:** International Maritime Dangerous Goods
**IMO:** International Maritime Organization.
**$LD_{50}$ value:** The median lethal dose or the amount of a toxic agent that is sufficient to kill 50 percent of a population within a certain period of time.
**TWA:** Time-weighted average – The average exposure over a specified period, usually a nominal eight hours.
**ST/STEL:** Short-term exposure limits.
**Disclaimer:** The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage and use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed. All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.

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For detailed information on revisions, contact the Registration holder.