

PH-LOGIC

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF PRODUCT AND COMPANY

Product Name: PH-LOGIC
 Buffer / Adjuvant

UN No. 2790

Supplier: Villa Crop Protection (Pty) Ltd.
 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:

Envirosure. +27 31 205 4918
 (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

Villa Crop Protection Emergency number:

National Safety, Health and Environmental Manager:
 +27 63 698 0668

2. COMPOSITION / INFORMATION ON INGREDIENTS

Active Ingredients:

Common Name: organic acid and alkali

Chemical Name: 1) Citric acid
 2) Acetic acid
 3) Ammonia solution

CAS No.: 1) 171 EAC 2) 64-19-7
 3) 7664-41-7

Chemical formula: 1) C₆H₈O₇ 2) C₂H₄O₂
 3) NH₃

Formulation: Mixed organic acids: 580 g/ℓ
 Water-soluble liquid (Emulsion)

Use: Buffering agent to correct the pH of alkaline or very acid spray water prior to the addition of pesticide.

Ingredients: acids: 58 %
 water: 42 %

Symbol: C, Xi

Indication of danger: Corrosive, Irritant

Risk Phrases: R20/21, R34, R36/37/38, R41, R50

3. HAZARD IDENTIFICATION

Main hazard: Skin and eye contact: Product is corrosive to skin and eyes, may cause burns. May cause serious damage to the eyes.

Inhalation: Irritant and burns to respiratory tract and mucous membrane. Inhalation of huge quantities may

cause nasal discharge, chest pain and breathing difficulty. Accumulation of fluid in the lungs (pulmonary edema), symptoms can be delayed for several hours.

Ingestion: Harmful to toxic when ingested. Causes digestive tract burns, inflammation of mouth, throat, oesophagus and/or stomach. Ingestion of huge quantities may cause nausea, vomiting, gastrointestinal irritation and/or diarrhoea.

4. FIRST AID MEASURES AND PRECAUTIONS

Inhalation: Move the victim to fresh air or remove source of contamination. Keep person warm and at rest. Treat symptomatically and supportively as and when required. Qualified personnel should perform administration of oxygen. Get medical attention immediately.

Skin contact: Move the victim to fresh air and remove all contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash affected skin areas gently and thoroughly with water and non-abrasive soap. Do not rub the skin. Persons who become sensitized may require specialized medical management. Immediately seek medical advice.

Eye contact: Immediately flush the contaminated eyes with gently flowing clean water for 15 to 20 minutes, occasionally lifting the upper and lower lids. Immediately seek medical advice.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Obtain medical attention immediately. Qualified medical personnel should perform administration of oxygen. If the person is alert, rinse mouth thoroughly with water and give person large volumes of water or milk to drink. When vomiting occurs, keep head lower than hips to prevent aspiration.

Advice to physician: No specific antidotes are available. Treat symptomatically. If the product has been ingested, inhaled, observe for latent pulmonary edema.

5. FIRE FIGHTING MEASURES

Fire and explosion hazard: Product burns with difficulty.

Flash point: Not available.

Explosion and burn hazard when exposed to heat or flames, but does not readily ignite.

Hazardous products of combustion: Fire may produce irritating, corrosive and/or toxic oxides of carbon.

Extinguishing agents: Extinguish fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product. Use as little water as possible. Use spray or fog. Solid stream may cause spreading. Contain water used for fire fighting for later disposal. Avoid the accumulation of polluted run-off from the site.

PH-LOGIC

MATERIAL SAFETY DATA SHEET

Firefighting: Remove spectators from surrounding area. Isolate the fire area and evacuate downwind. Use a recommended extinguishing agent for the type of surrounding fire.

Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal. Avoid inhaling hazardous vapours and fumes from burning materials. Keep upwind. Remove container from fire area if possible and without risk. Water can be used to cool unaffected containers but must be contained for later disposal.

Dyke fire control water for later disposal. Do not scatter the material. Avoid pollution of waterways.

Do not use high volume water jet, due to contamination risk. Contain water used for firefighting for later disposal. Avoid the accumulation of polluted run-off from the site.

Personal protective equipment: Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus. Do not breathe corrosive fumes from burning material. Keep upwind.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions: Avoid contact with skin and eyes. Do not breathe in spray or fumes. For personal protection see Section 8.

Environmental precautions: Do not allow entering drains or watercourses. Spillage or uncontrolled discharges into water courses (or public waters) to be reported immediately to the Police and to the Department of Water/Environmental Affairs. Considered as Marine Pollutant.

Occupational spill: Do not touch-spilled material; stop leak if you can do it without risk. Keep out unprotected persons and animals.

For spills: Soak up with absorptive material such as damp earth or sand or other suitable non-combustible absorbent material. Place the material into a clean, dry container and cover for subsequent disposal. Label containers with its content and dispose it in accordance with local regulations.

In situations where product comes in contact with water, contain contaminated water for later disposal. Prevent material from spreading by damming in with absorptive material. Do not flush spilled material into drains. Keep spectators away and upwind.

Open burning or dumping of this material is prohibited. Do not get water inside containers

7. HANDLING AND STORAGE REQUIREMENTS

Handling: Do not use near source of sparks or open flame. Harmful in contact with skin and if swallowed. Irritating to eyes and skin. Avoid contact with eyes and skin, and inhalation of spray and vapour. Use with

adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Operators should change and wash clothing daily. Remove clothing immediately if the product gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage: Keep out of reach of unauthorised persons, children and animals. Store in its original labelled container in isolated, dry, cool and well-ventilated area. Not to be stored next to foodstuffs and water supplies. Keep away from incompatible substances. Local regulations should be complied with.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT: If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

Respirator: An approved respirator suitable for protection from mists of pesticides is adequate. Limitations of respirator use specified by the approved agency and the manufacturer must be observed.

Clothing: Employee must wear appropriate protective (impervious) clothing and equipment to prevent skin contact with this substance. Wear long-sleeved shirt and long pants, chemical-resistant foot ware. Wash contaminated clothing and clean protective equipment before re-use.

Gloves: Employee must wear appropriate chemical-resistant and waterproof gloves to prevent contact with this substance.

Eye protection: The use of safety goggles, safety glasses or face shield is recommended. If vapour exposure causes eye discomfort a full-face respirator is recommended.

Emergency eye wash: Where there is any possibility that an employee's eyes may be exposed to this substance; the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

PH-LOGIC

MATERIAL SAFETY DATA SHEET

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear colourless water-like liquid, with slight **Acetic acid** odour.
Flammability: Not flammable & not combustible.
Flash point: Not available.
Corrosiveness: Corrosive to metal.
Solubility: Soluble in water.
pH: 4.11
pH of 1 % aqueous dilution: 4.26.

10. STABILITY AND REACTIVITY

Stability: Chemically and thermally stable.
Storage stability: Stable for a period of 2 years under normal warehouse conditions.
Conditions and Materials to Avoid: Keep the product in a cool, dry place, at below 30 °C. Protect from sunlight, open flame and sources of heat. Avoid contact with caustic soda, lime, strong alkali and oxidizing agents. Incompatible with copper, copper alloys, galvanized iron, zinc, aluminium, alkali metals. Product reacts with heavy metals, their salts and may form explosive compounds.
Thermal decomposition products: Thermal decomposition products may include oxides of carbon.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ in rats:
Formulation - calculated: > 7353 mg/kg
Acute dermal LD₅₀ in rabbits:
Formulation - calculated: > 3125 mg/kg
Acute inhalation in rats:
Acetic acid: 11.4 mg/ℓ/4hr
Ammonia: 1000 mg/ℓ/4hr
Formulation - calculated: severe irritant
Acute skin irritation in rabbits:
 Severe irritant.
Acute eye irritation in rabbits: Severe irritant may cause serious damage to eyes.
Dermal sensitisation: The product is corrosive. Effects depend on concentration and duration of exposure. Repeated or prolonged contact may result in dermatitis or similar effects to acute exposure.
Other Studies: No evidence of reproductive effects, teratogenic and carcinogenicity were observed with **Acetic acid** or ammonium. Ammonium is not mutagenic. In several studies **Acetic acid** was not mutagenic, however, in bacterial tests, positive results were reported. These positive results are thought to be due to artefacts caused by acidification of the culture media.
USA TLV:
Acetic acid: 10 ppm; **Ammonia:** 25 ppm
USA STEL:

Acetic acid: 15 ppm; **Ammonia:** 35 ppm

12. ECOLOGICAL INFORMATION

Degradability, Mobility and Accumulation:
Acetic acid: Is a common chemical found in all living organisms. It is readily broken down to carbon dioxide and water. 99% of the product is biodegraded after 7 days under anaerobic conditions. The atmospheric degradation half-life is estimated to be 26,7 days. The log n-octanol water partition coefficient for **Acetic acid** is -0.17. This suggests that **Acetic acid** has low potential to bio-accumulate.
 No harm is expected to wildlife or the environment, and no risk to the public if the product is used according to label recommendations.
Ammonia: is in the environment part of the nitrogen cycle. It volatilises into the atmosphere where it may undergo a variety of reactions. In surface water, ammonium may undergo microbiological nitrification, which yields hydrogen and utilizes oxygen so that, in certain systems, acidification and oxygen depletion may result.
Ammonia may be assimilated by aquatic plants as a nitrogen source or transferred to sediments or volatilised. In soil, major sources of **Ammonia** are the aerobic degradation of organic matter and the application and atmospheric deposition of synthetic fertilizers. The ammonium cation is adsorbed on positively charged clay particles and is relatively immobile. Most ammonium undergoes nitrification; the nitrate ion is mobile and is removed by leaching, plant root uptake, or denitrification.
ECOTOXICOLOGY:
Birds: Highly toxic to birds.
Fish:
Acetic acid: Slightly toxic to aquatic organisms.
LC₅₀ (96hrs): Bluegill sunfish: 75 mg/ℓ
 Fathead minnow: 79 - 88 mg/ℓ
 Mosquito fish: 251 mg/ℓ
LC₅₀ (24hrs): Daphnia magna 47 mg/ℓ
Ammonia: Highly toxic to aquatic organisms.
LC₅₀ (96hrs) Rainbow trout: 0.16 – 1.1 mg NH₃/ℓ
 Fathead minnow: 0.75 – 3.4 mg NH₃/ℓ
 Bluegill sunfish: 0.26 – 4.6 mg NH₃/ℓ
Bees: Not toxic to bees.
Algae: Highly toxic to algae.
Product is considered a water pollutant.

13. DISPOSAL CONSIDERATION

Pesticide disposal: Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be re-used or reprocessed. Never pour untreated waste or surplus products into public sewers or

PH-LOGIC

MATERIAL SAFETY DATA SHEET

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.

Container disposal: Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is destroyed. If burning of the container is allowed, stay out of smoke.

TRIPLE RINSE empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow draining for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the container three times with a volume of water equal to a minimum of a third of the volume of the container. Add the rinsing to the contents of the spray tank before destroying the container in the prescribed manner.

Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dumpsite. Prevent contamination of food, feedstuffs, drinking water and eating utensils. Comply with local legislation applying to waste disposal.

14. TRANSPORT INFORMATION

UN NUMBER: 2790
Road Transport ADR/RID:
 Class: 8
 Packaging group: III
 Shipping name: **Acetic acid, Citric acid & Ammonia solution (corrosive)**

Air Transport IATA/ICAO:
 Class: 8
 Packaging group: III
 Shipping name: **Acetic acid, Citric acid & Ammonia solution (corrosive)**

Maritime Transport IMDG/IMO:
 Class: 8
 Packaging group: III
 Shipping name: **Acetic acid, Citric acid & Ammonia solution (corrosive)**

15. REGULATORY INFORMATION

Symbol: N, Xi Xn
Symbol: C, Xi
Indication of danger: Corrosive; Irritant

Risk phrase(s):
R 20/21 Harmful by inhalation and in contact with skin.
R 34 Causes burns.
R 36/37/38 Irritating to eyes, respiratory system and skin.
R 41 Risk of serious damage to eyes.
R 51 Toxic to aquatic organisms.
Safety phrases:
S 2 Keep out of reach children.

S 3/9/14 Keep in a cool, well-ventilated place away from incompatible substances.
S 13 Keep away from food, drink and animal feeding stuffs.
S 23 Do not breathe vapour/spray.
S 24/25 Avoid contact with skin and eyes.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 61 Avoid release to the environment.

16. OTHER INFORMATION

Packaging: Packed in 1, 5, 10, 20, 25, 50 and 100 litres plastic containers and labelled according to South African regulations and guidelines.

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 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.

END OF DOCUMENT

Compiled: February 2016
Reviewed: March 2019
Revision no.: (2)
Next revision date: March 2024

For detailed information on revisions, contact the Registration holder.