Material Safety Data Sheet

Issue Date: May 2013

Product Name: AMITROLE T Herbicide

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: AMITROLE T Herbicide
Product Code: 0085
Product Type: Group Q Herbicide
Company Name: NUFARM AUSTRALIA LIMITED. (ABN 80 004 377 780)
Address: 103-105 Pipe Road Laverton North
Victoria 3026  Australia
Emergency Tel.: 1800 033 498 (24hr Australia)
Telephone/Fax Number: Tel: +61 3 9282-1000
Fax: +61 3 9282-1001

Recommended Use: For the control of weeds in orchards, vineyards, irrigation ditches and
drains, eucalyptus and pine plantations, roadsides, pre-plant wheat and
barley, and for general industrial situations as per the Directions for Use
on the label.

Other Information: This MSDS describes, to the best of our knowledge, the properties of the
concentrated product. The physical properties and some of the assessments do
not apply to the properties of the product once it has been diluted for
application. Acute health effects of the diluted product are likely to be
much less severe.

2. HAZARDS IDENTIFICATION

Hazard Classification: Classified as hazardous
HAZARDOUS SUBSTANCE.
NON-DANGEROUS GOODS.
Hazard classification according to the criteria of NOHSC.
Dangerous goods classification according to the Australia Dangerous Goods
Code.

Risk Phrase(s): R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
R32 Contact with acids liberates very toxic gas.
R48/22 Harmful: danger of serious damage to health by prolonged exposure if
swallowed.
R63 Possible risk of harm to the unborn child.

Safety Phrase(s): S13 Keep away from food, drink and animal feeding stuffs.
S2 Keep out of reach of children.
S36/37 Wear suitable protective clothing and gloves.
S46 If swallowed, seek medical advice immediately and show this container or
label.

Other Information: Poisons Schedule S5

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Name</th>
<th>CAS</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Amitrole (3-amino-1,2,4-triazole)</td>
<td>61-82-5</td>
<td>250 g/L</td>
</tr>
<tr>
<td></td>
<td>Ammonium thiocyanate</td>
<td>1762-95-4</td>
<td>220 g/L</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td></td>
<td>Balance</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Inhalation: Remove affected person to fresh air until recovered. Obtain medical advice.
Ingestion: If swallowed do NOT induce vomiting; seek medical advice immediately and show
this container or label or contact the Poisons Information Centre on 13 11 26
(Aust). Make every effort to prevent vomit from entering the lungs by careful
placement of the patient.
The above first aid instructions are mandated by the Commonwealth Department
of Health and Ageing via the National Drugs and Poisons Schedule. These
instructions are suitable for ingestion of spray solution and small amounts of
concentrate; however, if SUBSTANTIAL AMOUNTS of the concentrate have been
swallowed (more than about 20ml) AND if medical assistance is more than 30
Material Safety Data Sheet

Infosafe No™ NU00H Issue Date : May 2013 ISSUED by NUFARM

Product Name AMITROLE T Herbicide

Classified as hazardous

minutes away, the induction of vomiting should be CONSIDERED, preferably based on MEDICAL ADVICE if a physician can be contacted by phone. All care must be taken to prevent vomit from being inhaled. Do not give anything by mouth to a semi-conscious or unconscious person.

Skin
If skin contact occurs, remove contaminated clothing and wash skin thoroughly with water.

Remove contaminated clothing and launder before re-use.

Eye
If in eyes, hold eyelids open and wash with copious amounts of water for at least 15 minutes.

If irritation persists consult a doctor.

Advice to Doctor
Note that ingestion of ammonium thiocyanate may create symptoms similar to iodism or bromide intoxication.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media
If involved in a fire, the product will not burn. Choose extinguishing media to suit the burning material.

Extinguishing Media
Non-combustible.

Hazard from Combustion
If involved in a fire, the dehydrated components may emit oxides of nitrogen and oxides of sulphur.

Combustion Products
Breathable air apparatus may have to be worn in confined spaces.

Special Protective Equipment for firefighters

STOP FIRE WATER FROM ENTERING DRAINS OR WATER BODIES.

6. ACCIDENTAL RELEASE MEASURES

Spills & Disposal
Contain spill and absorb with clay, sand, soil or proprietary absorbent (such as vermiculite).

Collect spilled material and waste in sealable open-top type containers for disposal.

Dispose of at a landfill in accordance with local regulations.

Other Information
Prevent from entering drains, waterways or sewers.

This product is a herbicide and spills can damage crops, pastures and desirable vegetation.

7. HANDLING AND STORAGE

Conditions for Safe Storage
Store in the closed, original container in a dry, well ventilated area out of direct sunlight.

Do not store in the same area as acids.

Keep container tightly sealed and do not store with seed, fertilisers or foodstuffs.

Tank Cleaning
Thoroughly flush all spray equipment with water following the use of this product and before use with other products.

Other Information
Always read the label and any attached leaflet before use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards

<table>
<thead>
<tr>
<th>Name</th>
<th>STEL</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitrole (3-amino-1,2,4-triazole)</td>
<td>0.2 ppm</td>
<td></td>
</tr>
</tbody>
</table>

Engineering Controls
Natural ventilation is sufficient when handling concentrate and preparing spray solution.

Personal Protective Equipment
It is good practice to wear suitable personal protective equipment (PPE).

When opening the container and preparing the spray wear cotton overalls buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves and face shield or goggles.

When using the prepared spray wear cotton overalls buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves.

Hygiene Measures
After use and before eating, drinking or smoking, wash hands, arms and face
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Brown liquid</td>
</tr>
<tr>
<td>Melting Point</td>
<td>&lt;0°C</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>&gt;100°C</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Soluble in water</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.12</td>
</tr>
<tr>
<td>pH Value</td>
<td>6.6 - 6.9</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>Amitrole is not volatile</td>
</tr>
<tr>
<td>Volatile Component</td>
<td>63%</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not applicable for water based formulation</td>
</tr>
<tr>
<td>Flammability</td>
<td>Product is not a combustible liquid - a water based solution.</td>
</tr>
<tr>
<td>Flammable Limits - Lower</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Stability</th>
<th>Stable under normal conditions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompatible Materials</td>
<td>Corrosive to iron, steel, copper and brass.</td>
</tr>
<tr>
<td>Reaction with acids</td>
<td>Can liberate a very toxic gas.</td>
</tr>
<tr>
<td>Hazardous Reactions</td>
<td>Violent reactions between thiocyanates and oxidising agents are possible.</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Hazardous polymerisation is not possible.</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Not a likely route of exposure when handling the concentrate.</td>
</tr>
<tr>
<td></td>
<td>However, care should be taken to avoid the inhalation of excessive amounts</td>
</tr>
<tr>
<td></td>
<td>of spray mist during field spraying, respiratory irritation may occur.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>The concentrate is harmful if swallowed.</td>
</tr>
<tr>
<td></td>
<td>Amounts swallowed incidental to normal handling procedures and use are not</td>
</tr>
<tr>
<td></td>
<td>expected to cause injury. However, swallowing of large amounts may cause</td>
</tr>
<tr>
<td></td>
<td>injury, mainly due to ammonium thiocyanate.</td>
</tr>
<tr>
<td></td>
<td>Possible symptoms of exposure of the concentrate include: nausea, vomiting,</td>
</tr>
<tr>
<td></td>
<td>diarrhoea, convulsions and possibly skin rashes or eruptions.</td>
</tr>
<tr>
<td>Skin</td>
<td>The concentrated product may cause slight irritation on contact.</td>
</tr>
<tr>
<td></td>
<td>Prolonged contact with the concentrate may cause irritation and cause skin</td>
</tr>
<tr>
<td></td>
<td>eruptions.</td>
</tr>
<tr>
<td>Eye</td>
<td>The concentrate may cause irritation of the eyes.</td>
</tr>
<tr>
<td></td>
<td>Extent of potential injury is not known.</td>
</tr>
<tr>
<td>Chronic Effects</td>
<td>Chronic Exposure: Based on the results of animal studies, liver and thyroid</td>
</tr>
<tr>
<td></td>
<td>effects may result. The weight of evidence is that amitrole is not</td>
</tr>
<tr>
<td></td>
<td>carcinogenic.</td>
</tr>
<tr>
<td></td>
<td>Epidemiological studies of workers using amitrole in the field have been</td>
</tr>
<tr>
<td></td>
<td>inconclusive with respect to an increase in the incidence of a specific</td>
</tr>
<tr>
<td></td>
<td>cancer.</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>For Ammonium Thiocyanate: Ingestion of this substance may lead to an effect</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>that mimics iodism, ie a condition resulting from an overdose of iodine,</td>
</tr>
<tr>
<td></td>
<td>characterised by running eyes and nose, salivation and skin eruptions.</td>
</tr>
<tr>
<td></td>
<td>Evidence from animal studies suggests the potential for developmental toxicity</td>
</tr>
<tr>
<td></td>
<td>for amitrole.</td>
</tr>
<tr>
<td></td>
<td>Laboratory studies are not conclusive, some positive, some negative.</td>
</tr>
</tbody>
</table>
Material Safety Data Sheet

Product Name AMITROLE T Herbicide

Classified as hazardous

Acute Toxicity - Oral
LD50 (rat) 1100 – 24600 mg/kg for amitrole
LD50 (rat) 1527 mg/kg for Amitrole T Herbicide
LD50 (mouse) 300 mg/kg for ammonium thiocyanate

Acute Toxicity - Dermal
LD50 rat >10000 mg/kg

Eye Irritation
Mild eye irritant.

Skin Irritation
Mild skin irritant.

Other Information

The Australian Acceptable Daily Intake (ADI) for amitrole for a human is 0.0003 mg/kg/day, set for the public for daily, lifetime exposure. This is based on the NOEL of 0.025 mg/kg/day, the level determined to show no effects during long term exposure for the most sensitive indicators and the most sensitive species. (Ref: Comm. Dept. of Health and Ageing, Office of Chemical Safety, 'ADI List', March 2013).

12. ECOLOGICAL INFORMATION

Persistence / Degradability
Half life in soil is typically 14 days. Loss from soil is principally by microbial degradation.

Environ. Protection
Spray drift can cause damage, read the label for more information.

Acute Toxicity - Fish
Not toxic to fish.

Acute Toxicity - Other Organisms
Not toxic to bees. Not toxic to birds.

13. DISPOSAL CONSIDERATIONS

Product Disposal
On site disposal of the concentrated product is not acceptable. Ideally, the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities who hold periodic collections of unwanted chemicals (ChemClear®).

Container Disposal

- drumMUSTER is the national program for the collection and recycling of empty, cleaned, non returnable crop production and on-farm animal health chemical containers. If the label on your container carries the drumMUSTER symbol, triple rinse the container, ring your local Council, and offer the container for collection in the program.
- Triple or preferably pressure rinse inner bladder or containers before disposal. Add rinsings to the spray tank. If recycling, replace cap and return clean containers to recycler or designated collection point.
- If not recycling, break, crush or puncture and deliver empty packaging for appropriate disposal at an approved waste management facility. Returnable containers: empty contents fully into application equipment. Replace cap, close all valves and return to the point of supply for refill or storage.
- Empty containers and product should not be burnt.

14. TRANSPORT INFORMATION

Transport Information
It is good practice not to transport agricultural chemical products with food, food related materials and animal feedstuffs.

Storage and Transport
Considered non dangerous for transport by the Australian Code for the Transport of Dangerous Goods by Road and Rail.

15. REGULATORY INFORMATION

Poisons Schedule
S5

Packaging & Labelling
CAUTION
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Hazard Category
Harmful

Other Information
This product is registered with the Australian Pesticides and Veterinary Medicines Authority (APVMA). APVMA product number: 31236.
**Material Safety Data Sheet**

**Infosafe No™ NU00H**
**Issue Date:** May 2013
**ISSUED by NUFARM**

**Product Name** AMITROLE T Herbicide

**Classified as hazardous**

<table>
<thead>
<tr>
<th>Date of preparation or last revision of MSDS</th>
<th>Reviewed 16/05/2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contact</strong></td>
<td>Normal Hours: Mrs Kathleen Marsh Phone: +61 3 9282 1000</td>
</tr>
<tr>
<td><strong>Person/Point</strong></td>
<td>After Hours: Shift Supervisor Phone: 1800 033 498</td>
</tr>
<tr>
<td><strong>Revisions Highlighted</strong></td>
<td>The MSDS was reviewed. Minor changes were made to the information.</td>
</tr>
</tbody>
</table>

...End Of MSDS...

© Copyright ACOHS Pty Ltd

Copyright in the source code of the HTML, PDF, SME, XFO and any other electronic files rendered by an Infosafe system for Infosafe MSDS displayed is the intellectual property of Acohs Pty Ltd.

Copyright in the layout, presentation and appearance of each Infosafe MSDS displayed is the intellectual property of Acohs Pty Ltd.

Copying of any MSDS displayed is permitted for personal use only and otherwise is not permitted. In particular the MSDS’s displayed cannot be copied for the purpose of sale or licence or for inclusion as part of a collection of MSDS without the express written consent of Acohs Pty Ltd.