# AC Mut 700 Herbicide

## AXICHEM Pty Ltd

Chemwatch Hazard Alert Code: **1**

Chemwatch: **4841-22**
Version No: **4.1**
Safety Data Sheet according to WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements

Issue Date: **10/12/2021**
Print Date: **28/06/2022**
L.GHS.AUS.EN

## SECTION 1 Identification of the substance / mixture and of the company / undertaking

### Product Identifier

| | |
|---|---|
| **Product name** | AC Mut 700 Herbicide |
| **Chemical Name** | Not Applicable |
| **Synonyms** | Not Available |
| **Chemical formula** | Not Applicable |
| **Other means of identification** | Not Available |

### Relevant identified uses of the substance or mixture and uses advised against

| | |
|---|---|
| **Relevant identified uses** | Agricultural herbicide for use as described on the product label. |

### Details of the supplier of the safety data sheet

| | |
|---|---|
| **Registered company name** | **AXICHEM Pty Ltd** |
| **Address** | 9 Palings Court Nerang QLD 4211 Australia |
| **Telephone** | 07 5596 1736 |
| **Fax** | Not Available |
| **Website** | www.axichem.com.au |
| **Email** | msds@axichem.com.au |

### Emergency telephone number

| | |
|---|---|
| **Association / Organisation** | **CHEMWATCH EMERGENCY RESPONSE** |
| **Emergency telephone numbers** | +61 1800 951 288 |
| **Other emergency telephone numbers** | +61 3 9573 3188 |

**Once connected and if the message is not in your prefered language then please dial 01**

## SECTION 2 Hazards identification

### Classification of the substance or mixture

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|---|---|
| **Poisons Schedule** | S5 |
| **Classification [1]** | Hazardous to the Aquatic Environment Long-Term Hazard Category 2 |
| ***Legend:*** | *1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI* |

### Label elements

| | |
|---|---|
| **Hazard pictogram(s)** |  |
| **Signal word** | **Not Applicable** |

## Hazard statement(s)

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|---|---|
| **H411** | Toxic to aquatic life with long lasting effects. |

## Precautionary statement(s) Prevention

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|---|---|
| **P273** | Avoid release to the environment. |

## Precautionary statement(s) Response

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|---|---|
| **P391** | Collect spillage. |

## Precautionary statement(s) Storage

Not Applicable

## Precautionary statement(s) Disposal

| | |
|---|---|
| **P501** | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. |

Not Applicable

# SECTION 3 Composition / information on ingredients

## Substances

See section below for composition of Mixtures

## Mixtures

| CAS No | %[weight] | Name |
|---|---|---|
| 114370-14-8 | 70 | glyphosate mono-ammonium salt |
| Not Available | | (700 g/kg) |
| Not Available | balance | other non hazardous ingredients |

| | |
|---|---|
| ***Legend:*** | *1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; * EU IOELVs available* |

# SECTION 4 First aid measures

## Description of first aid measures

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| **Eye Contact** | If this product comes in contact with the eyes:<br>‣ Wash out immediately with fresh running water.<br>‣ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.<br>‣ Seek medical attention without delay; if pain persists or recurs seek medical attention.<br>‣ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Skin Contact** | If skin or hair contact occurs:<br>‣ Flush skin and hair with running water (and soap if available).<br>‣ Seek medical attention in event of irritation. |
| **Inhalation** | ‣ If dust is inhaled, remove from contaminated area.<br>‣ Encourage patient to blow nose to ensure clear passage of breathing.<br>‣ If irritation or discomfort persists seek medical attention. |
| **Ingestion** | ‣ If swallowed do **NOT** induce vomiting.<br>‣ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.<br>‣ Observe the patient carefully.<br>‣ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.<br>‣ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.<br>‣ Seek medical advice. |

## Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

**Treatment for significant glyphosate exposures**

The presence of a phosphono-group in the structure has been incorrectly interpreted as an organophosphate which suggests cholinesterase inhibition in poisoning

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cases. Retrospective studies on glyphosate poisoning have shown atropine and pralidoxime been mistakenly administered to counteract such poisoning cases.

There is no available antidote for glyphosate poisoning and treatment is largely symptomatic is nature.

In any significant ingestion exposure, the acute syndrome of glyphosate/ surfactant toxicity may occur within the first 24 hours of ingestion and may progress rapidly. These cases of significant ingestion, in particular those greater than a mouthful (> 0.5 ml/kg) of larger than 41% glyphosate concentrations SHOULD BE EVALUATED BY A PHYSICIAN AND CONSIDERED FOR HOSPITAL ADMISSION.

**Prevention of absorption**
On admission to a hospital, normally, further absorption of the ingested herbicide would be prevented by performing gastric lavage, It is usually considered if no significant spontaneous vomiting has occurred. Gastric lavage may be very effective if performed within one to two hours post ingestion.

However, if a co-ingestant has pharmacologic properties that slows gastrointestinal movement, lavage may be indicated even after a prolonged post-ingestion time.

Activated charcoal is also given to absorb remaining glyphosate. Cathartics speed gastrointestinal transit time and decrease the time that the drug or chemical is available for absorption. Cathartics also hasten the elimination of the charcoal/drug complex in the GI tract.

**Enhanced elimination**
Glyphosate is excreted very well by the kidneys. Thus to increase the elimination of the glyphosate, adequate urine flow will ensure the rapid elimination of the glyphosate. This elimination can be enhanced by a technique known as forced diuresis.

**Monitoring of the blood pressure**
A poisoned patient would normally be monitored for signs of haemodynamic or blood pressure instability. If the patient has a reduced blood pressure, intravenous fluids administration would be instituted to ensure adequate blood volume. If the blood pressure reduction is severe, then blood vessel vasoconstrictors (otherwise known as vasopressors) would be given to maintain the blood pressure. This would include the administration of drugs such as dopamine, noradrenaline, adrenaline or phenylephrine, which would raise the blood pressure rapidly.

http://www.prn2.usm.my/mainsite/bulletin/sun/1997/sun14.html

*Dr. Mohd. Isa Abd. Majid*

*Toxicology Laboratory at the National Poison Centre, Universiti Sains Malaysia, 11800 Minden, Penang.*
A 1991 survey of 93 attempted suicides by drinking undiluted Roundup type preparations noted 7 deaths within hours of intakes of 85 to 200 ml. Severe effects shown were pulmonary dysfunction, kidney failure, coma, hypotension requiring pressor amines, repeated seizures, cardiac arrest. 13 of 93 showed only mild effects, nausea, vomiting and recovered within 24 hours.

## SECTION 5 Firefighting measures

### Extinguishing media

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

### Special hazards arising from the substrate or mixture

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| **Fire Incompatibility** | Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |

### Advice for firefighters

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| **Fire Fighting** | Alert Fire Brigade and tell them location and nature of hazard.<br>Wear breathing apparatus plus protective gloves.<br>Prevent, by any means available, spillage from entering drains or water courses.<br>Use water delivered as a fine spray to control fire and cool adjacent area.<br>**DO NOT** approach containers suspected to be hot.<br>Cool fire exposed containers with water spray from a protected location.<br>If safe to do so, remove containers from path of fire.<br>Equipment should be thoroughly decontaminated after use. |
| **Fire/Explosion Hazard** | The material is not readily combustible under normal conditions.<br>However, it will break down under fire conditions and the organic component may burn.<br>Not considered to be a significant fire risk.<br>Heat may cause expansion or decomposition with violent rupture of containers.<br>Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).<br>May emit acrid smoke. |

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| | Combustion products include:<br>carbon dioxide (CO2)<br>nitrogen oxides (NOx)<br>phosphorus oxides (POx)<br>other pyrolysis products typical of burning organic material.<br>Avoid creating dust - may present dust explosion hazard. Dry dust can be electrostatically charged by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport. Build-up of electrostatic charge may be prevented by grounding. |
| **HAZCHEM** | Not Applicable |

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

| | |
|---|---|
| **Minor Spills** | Environmental hazard - contain spillage.<br>‣ Remove all ignition sources.<br>‣ Clean up all spills immediately.<br>‣ Avoid contact with skin and eyes.<br>‣ Control personal contact with the substance, by using protective equipment.<br>‣ Use dry clean up procedures and avoid generating dust.<br>‣ Place in a suitable, labelled container for waste disposal. |
| **Major Spills** | Environmental hazard - contain spillage.<br>Moderate hazard.<br>‣ **CAUTION**: Advise personnel in area.<br>‣ Alert Emergency Services and tell them location and nature of hazard.<br>‣ Control personal contact by wearing protective clothing.<br>‣ Prevent, by any means available, spillage from entering drains or water courses.<br>‣ Recover product wherever possible.<br>‣ **IF DRY:** Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. **IF WET:** Vacuum/shovel up and place in labelled containers for disposal.<br>‣ **ALWAYS:** Wash area down with large amounts of water and prevent runoff into drains.<br>‣ If contamination of drains or waterways occurs, advise Emergency Services. |

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 Handling and storage

### Precautions for safe handling

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| **Safe handling** | Do NOT mix, store or apply the material/ formulations of the glyphosate, its salts or compounds in galvanised steel or unlined steel (except stainless steel), containers or spray tanks. The material/ formulations of the material/ spray solutions react with such containers and tanks to produce hydrogen gas which forms gas mixtures which may flash or explode when exposed to open flame, spark, welder torch, lighted cigarette or other sources.<br><br>Glyphosate preparations are considered to be relatively "safe to use" as weedkiller herbicide. However any weedkiller, by its action of killing plant life cannot be completely safe and must be used with care and not be sprayed about indiscriminately. Glyphosate is poisonous in large doses, but if used with care and with responsible application is non harmful.<br>‣ Limit all unnecessary personal contact.<br>‣ Wear protective clothing when risk of exposure occurs.<br>‣ Use in a well-ventilated area.<br>‣ Avoid contact with incompatible materials.<br>‣ When handling, **DO NOT** eat, drink or smoke.<br>‣ Keep containers securely sealed when not in use.<br>‣ Avoid physical damage to containers.<br>‣ Always wash hands with soap and water after handling.<br>‣ Work clothes should be laundered separately.<br>‣ Use good occupational work practice.<br>‣ Observe manufacturer's storage and handling recommendations contained within this SDS.<br>‣ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.<br>‣ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)<br>‣ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame. |

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|---|---|
| | - Establish good housekeeping practices.<br>- Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds.<br>- Use continuous suction at points of dust generation to capture and minimise the accumulation of dusts. Particular attention should be given to overhead and hidden horizontal surfaces to minimise the probability of a "secondary" explosion. According to NFPA Standard 654, dust layers 1/32 in.(0.8 mm) thick can be sufficient to warrant immediate cleaning of the area.<br>- Do not use air hoses for cleaning.<br>- Minimise dry sweeping to avoid generation of dust clouds. Vacuum dust-accumulating surfaces and remove to a chemical disposal area. Vacuums with explosion-proof motors should be used.<br>- Control sources of static electricity. Dusts or their packages may accumulate static charges, and static discharge can be a source of ignition.<br>- Solids handling systems must be designed in accordance with applicable standards (e.g. NFPA including 654 and 77) and other national guidance.<br>- Do not empty directly into flammable solvents or in the presence of flammable vapors.<br>- The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastics cannot be grounded, and antistatic bags do not completely protect against development of static charges.<br>Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.<br>- Do NOT cut, drill, grind or weld such containers.<br>- In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit. |
| **Other information** | - Keep dry.<br>- Store under cover.<br>- Store in a well ventilated area.<br>- Store away from sources of heat or ignition.<br>- Observe manufacturer's storage and handling recommendations contained within this SDS. |

## Conditions for safe storage, including any incompatibilities

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| **Suitable container** | - **DO NOT** use mild steel or galvanised containers<br>- Polyethylene or polypropylene container.<br>- Check all containers are clearly labelled and free from leaks. |
| **Storage incompatibility** | Avoid storage with oxidisers |

## SECTION 8 Exposure controls / personal protection

### Control parameters

**Occupational Exposure Limits (OEL)**

**INGREDIENT DATA**

Not Available

**Emergency Limits**

| Ingredient | TEEL-1 | TEEL-2 | TEEL-3 |
|---|---|---|---|
| AC Mut 700 Herbicide | Not Available | Not Available | Not Available |

| Ingredient | Original IDLH | Revised IDLH |
|---|---|---|
| glyphosate mono-ammonium salt | Not Available | Not Available |

**MATERIAL DATA**

It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.
At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience). Airborne concentrations must be maintained as low as is practically possible and occupational exposure must be kept to a minimum.
**NOTE:** The ACGIH occupational exposure standard for Particles Not Otherwise Specified (P.N.O.S) does NOT apply.

### Exposure controls

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|---|---|
| **Appropriate engineering controls** | Concentrate material is measured and mixed, preferably outdoors, in proportions as recommended by manufacturer.<br>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.<br>The basic types of engineering controls are:<br>Process controls which involve changing the way a job activity or process is done to reduce the risk.<br>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. |

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Employers may need to use multiple types of controls to prevent employee overexposure.

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

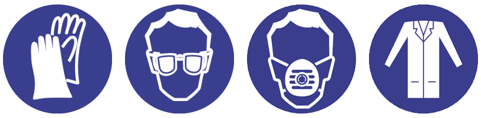
| Type of Contaminant: | Air Speed: |
|---|---|
| solvent, vapours, degreasing etc., evaporating from tank (in still air) | 0.25-0.5 m/s<br>(50-100 f/min) |
| aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation) | 0.5-1 m/s<br>(100-200 f/min.) |
| direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion) | 1-2.5 m/s<br>(200-500 f/min) |
| grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion). | 2.5-10 m/s<br>(500-2000 f/min.) |

Within each range the appropriate value depends on:

| Lower end of the range | Upper end of the range |
|---|---|
| 1: Room air currents minimal or favourable to capture | 1: Disturbing room air currents |
| 2: Contaminants of low toxicity or of nuisance value only | 2: Contaminants of high toxicity |
| 3: Intermittent, low production. | 3: High production, heavy use |
| 4: Large hood or large air mass in motion | 4: Small hood - local control only |

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

**Personal protection**



**Eye and face protection**

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

**Skin protection**

See Hand protection below

**Hands/feet protection**

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.
Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:
· frequency and duration of contact,
· chemical resistance of glove material,
· glove thickness and
· dexterity
Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).
· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
· Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
· Contaminated gloves should be replaced.

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| | As defined in ASTM F-739-96 in any application, gloves are rated as:<br>· Excellent when breakthrough time > 480 min<br>· Good when breakthrough time > 20 min<br>· Fair when breakthrough time < 20 min<br>· Poor when glove material degrades<br>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.<br>It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.<br>Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task.<br>Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:<br>· Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.<br>· Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential<br>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.<br>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.<br>▸ polychloroprene.<br>▸ nitrile rubber.<br>▸ butyl rubber.<br>▸ fluorocaoutchouc.<br>▸ polyvinyl chloride.<br>Gloves should be examined for wear and/ or degradation constantly. |
| **Body protection** | See Other protection below |
| **Other protection** | ▸ Overalls.<br>▸ P.V.C apron.<br>▸ Barrier cream.<br>▸ Skin cleansing cream.<br>▸ Eye wash unit. |

## Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|---|---|---|---|
| up to 10 x ES | P1<br>Air-line* | -<br>- | PAPR-P1<br>- |
| up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| up to 100 x ES | - | P3 | - |
| | | Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

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|---|---|
| **Appearance** | Pale beige free flowing granulated solid with slight odour; mixes with water. |

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|---|---|---|---|
| **Physical state** | Divided Solid | **Relative density (Water = 1)** | Not Available |
| **Odour** | Not Available | **Partition coefficient n-octanol / water** | Not Available |
| **Odour threshold** | Not Available | **Auto-ignition temperature (°C)** | Not Available |
| **pH (as supplied)** | Not Applicable | **Decomposition temperature (°C)** | Not Available |
| **Melting point / freezing point (°C)** | >190 | **Viscosity (cSt)** | Not Applicable |

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| | | | |
|---|---|---|---|
| **Initial boiling point and boiling range (°C)** | Not Available | **Molecular weight (g/mol)** | Not Applicable |
| **Flash point (°C)** | Not Applicable | **Taste** | Not Available |
| **Evaporation rate** | Not Available | **Explosive properties** | Not Available |
| **Flammability** | Not Applicable | **Oxidising properties** | Not Available |
| **Upper Explosive Limit (%)** | Not Available | **Surface Tension (dyn/cm or mN/m)** | Not Applicable |
| **Lower Explosive Limit (%)** | Not Available | **Volatile Component (%vol)** | Not Applicable |
| **Vapour pressure (kPa)** | Not Applicable | **Gas group** | Not Available |
| **Solubility in water** | Miscible | **pH as a solution (Not Available%)** | Not Available |
| **Vapour density (Air = 1)** | Not Available | **VOC g/L** | Not Available |

## SECTION 10 Stability and reactivity

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|---|---|
| **Reactivity** | See section 7 |
| **Chemical stability** | ‣ Unstable in the presence of incompatible materials.<br>‣ Product is considered stable.<br>‣ Hazardous polymerisation will not occur. |
| **Possibility of hazardous reactions** | See section 7 |
| **Conditions to avoid** | See section 7 |
| **Incompatible materials** | See section 7 |
| **Hazardous decomposition products** | See section 5 |

## SECTION 11 Toxicological information

### Information on toxicological effects

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|---|---|
| **Inhaled** | The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.<br>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.<br>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures. |
| **Ingestion** | Ingestion may result in nausea, abdominal irritation, pain and vomiting<br>Glyphosate is classified by IARC as "Probably Carcinogenic to Humans"(Group 2A, 2016)<br>In making this overall evaluation, the IARC Working Group noted that the mechanistic and other relevant data support the classification of glyphosate in Group 2A. In addition to limited evidence for the carcinogenicity of glyphosate in humans and sufficient evidence for the carcinogenicity of glyphosate in experimental animals, there is strong evidence that glyphosate can operate through two key characteristics of known human carcinogens, and that these can be operative in humans. Specifically:<br>· There is strong evidence that exposure to glyphosate or glyphosate-based formulations is genotoxic based on studies in humans in vitro and studies in experimental animals. One study in several communities in individuals exposed to glyphosate-based formulations also found chromosomal damage in blood cells; in this study, markers of chromosomal damage (micronucleus formation) were significantly greater after exposure than before exposure in the same individuals.<br>· There is strong evidence that glyphosate, glyphosate-based formulations, and aminomethylphosphonic acid can act to induce oxidative stress based on studies in experimental animals, and in studies in humans in vitro. This mechanism has been challenged experimentally by administering antioxidants, which abrogated the effects of glyphosate on oxidative stress. Studies in aquatic species provide additional evidence for glyphosate-induced oxidative stress.<br>This classification remains controversial an has been challenged by manufacturers at government level.<br>While glyphospate can be described as an dorganophosphorus compound, glyphosate is not a member of the family of organophosphate esters which are widely used as pesticides. Thus glyphosate and its salts and compounds do not inhibit cholinesterase activity as do the esters.<br>While glyphosate itself may be relatively harmless, some of the products with which it is formulated have a rather less benign reputation. Marketed formulations of glyphosate generally contain a surfactant. The purpose of this is to prevent the chemical from forming into droplets and rolling off leaves which are sprayed. Some of these surfactants are serious irritants, toxic to fish, and can themselves contain contaminants which are carcinogenic to humans.<br>The most widely used type of surfactants in glyphosate formulations are known as ethylated amines. POEA (polyoxy-ethyleneamine) has been frequently mentioned as a surfactant, but in fact it refers to a group of ethylated amine products used in |

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|---|---|
| | glyphosate formulations. Members of this group of surfactants are significantly more toxic than glyphosate. They are serious irritants of eyes, the respiratory tract and skin, and have been found to contain dioxane (not dioxin) contaminants which are suspected of being carcinogenic. Accordingly, the UN FAO has set standards of 1ppm for levels of the contaminant 1,4 dioxane which may be present in POEA surfactants.<br>A 1991 survey of 93 attempted suicides by drinking undiluted Roundup type preparations noted 7 deaths within hours of intakes of 85 to 200 ml. Severe effects shown were pulmonary dysfunction, kidney failure, coma, hypotension requiring pressor amines, repeated seizures, cardiac arrest. 13 of 93 showed only mild effects, nausea, vomiting and recovered within 24 hours.<br>73 of 93 recovered but suffered sore throat, difficulty in swallowing, mouth ulcers, gastrointestinal haemorrhage, hypotension responsive to intravenous fluids, transient liver or kidney damage, blood in urine. A wide variation in dose response was seen and may be due to a major presence of surfactants. [IPCS Environmental Health Criteria No. 159] |
| **Skin Contact** | The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.<br>Open cuts, abraded or irritated skin should not be exposed to this material<br>Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. |
| **Eye** | Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals. |
| **Chronic** | Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray.<br>For glyphosates:<br>Exposure of male farmers to glyphosate-based herbicides was associated with an increase in miscarriage and premature birth in farm families. Glyphosate killed cultured human placental cells at concentrations far below those used in agriculture practice. Moreover this study found that a commercial preparation containing glyphosate, Roundup, was at least twice as toxic as glyphosate alone. Roundup's main adjuvant is the surfactant tallow ethoxylated which helps penetration of plant cell walls. This surfactant may enhance the bioavailability and/ or bioaccumulation of glyphosate The viability of cells exposed to glyphosate was considerably reduced when even minute concentrations of Roundup were added.<br>Environmental Health Perspectives 113, 76, pp A403-404, June 205<br>Repeated exposure over 90 days to dietary glyphosate, by mice, produced decreased weight gain at high levels. This did not occur in rats. Repeated skin exposure over 3 weeks produced only slight primary skin irritation in rabbits. Repeated challenges to guinea pig skin elicited no allergic reaction. There was no evidence of neurological damage, including delayed effects in chickens following repeated oral doses, or cholinesterase inhibition in rats following single oral doses.<br>A 2-year feeding study in mice at high doses produced reduced body-weight gain and changes in the liver. Reduced weight gain and eye changes were seen in rats in one 2-year study. These studies did not produce evidence of tumour formation and the US EPA has classified glyphosate as category E (evidence of non-carcinogenicity in humans). Maternally toxic doses did not produce birth defects in rats. When glyphosate was fed continuously at high dose rates to rats for two successive generations, toxicity was recorded in the off-spring. Glyphosate has not produced genetic change in a variety of standard tests using animal or bacterial cells.<br>Long-term administration of glyphosate to several animal species produced cytoplasmic alteration and hypertrophy of salivary glands and adverse effects on the hepatobiliary system. Prolonged or repeated administration of technical grades of glyphosate produced diarrhoea, nasal discharge, inactivity, reduced body weight gain, stomach haemorrhages, thymic hyperplasia, and microscopic changes in liver and kidneys, effects on the uterus and adverse effects on reproduction.<br>**Chronic toxicity:** Studies of glyphosate lasting up to 2 years, have been conducted with rats, dogs, mice, and rabbits, and with few exceptions no effects were observed. For example, in a chronic feeding study with rats, no toxic effects were observed in rats given doses as high as 400 mg/kg/day. Also, no toxic effects were observed in a chronic feeding study with dogs fed up to 500 mg/kg/day, the highest dose tested.<br>**Reproductive effects:** Laboratory studies show that glyphosate produces reproductive changes in test animals very rarely and then only at very high doses (over 150 mg/kg/day). It is unlikely that the compound would produce reproductive effects in humans.<br>**Teratogenic effects:** In a teratology study with rabbits, no developmental toxicity was observed in the fetuses at the highest dose tested (350 mg/kg/day). Rats given doses up to 175 mg/kg/day on days 6 to 19 of pregnancy had offspring with no teratogenic effects, but other toxic effects were observed in both the mothers and the fetuses. No toxic effects to the fetuses occurred at 50 mg/kg. Glyphosate does not appear to be teratogenic.<br>**Mutagenic effects:** Glyphosate mutagenicity and genotoxicity assays have been negative. These included the Ames test, other bacterial assays, and the Chinese Hamster Ovary (CHO) cell culture, rat bone marrow cell culture, and mouse dominant lethal assays. It appears that glyphosate is not mutagenic.<br>**Carcinogenic effects:** Rats given oral doses of up to 400 mg/kg/day did not show any signs of cancer, nor did dogs given oral doses of up to 500 mg/kg/day or mice fed glyphosate at doses of up to 4500 mg/kg/day. It appears that glyphosate is not carcinogenic.<br>**Organ toxicity:** Some microscopic liver and kidney changes, but no observable differences in function or toxic effects, have been seen after lifetime administration of glyphosate to test animals. |

| | TOXICITY | IRRITATION |
|---|---|---|
| **AC Mut 700 Herbicide** | Not Available | Not Available |

| | TOXICITY | IRRITATION |
|---|---|---|
| **glyphosate mono-ammonium salt** | Dermal (rabbit) LD50: >5000 mg/kg[2] | Eye (rabbit): slight. * |

Continued...

| | | |
|---|---|---|
| | Inhalation(Rat) LC50; >1.9 mg/l4h[2]<br>Oral (Rat) LD50; 4613 mg/kg[2] | Skin (rabbit): 4 hours - Nil * |
| ***Legend:*** | *1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances* | |

| | |
|---|---|
| **GLYPHOSATE MONO-AMMONIUM SALT** | * Monsanto MSDS Glyphosate was fed continuously to rats at very high doses for two successive generations. Toxicity was reported in the offspring from the high dose, a level which also produced adverse effects on the mothers. In a three generation study conducted at lower dose levels, no effects were seen on the ability of male and female rats to reproduce. Glyphosate has produced no genetic changes in a variety of standard tests using animals and animal or bacterial cells. [Monsanto] |

| | | | |
|---|---|---|---|
| **Acute Toxicity** | ✗ | **Carcinogenicity** | ✗ |
| **Skin Irritation/Corrosion** | ✗ | **Reproductivity** | ✗ |
| **Serious Eye Damage/Irritation** | ✗ | **STOT - Single Exposure** | ✗ |
| **Respiratory or Skin sensitisation** | ✗ | **STOT - Repeated Exposure** | ✗ |
| **Mutagenicity** | ✗ | **Aspiration Hazard** | ✗ |

***Legend:*** ✗ *– Data either not available or does not fill the criteria for classification*
✓ *– Data available to make classification*

## SECTION 12 Ecological information

### Toxicity

| | **Endpoint** | **Test Duration (hr)** | **Species** | **Value** | **Source** |
|---|---|---|---|---|---|
| **AC Mut 700 Herbicide** | Not Available | Not Available | Not Available | Not Available | Not Available |
| **glyphosate mono-ammonium salt** | NOEC(ECx) | 168h | Crustacea | 0.007mg/l | 4 |
| ***Legend:*** | *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data* | | | | |

**DO NOT** discharge into sewer or waterways.

### Persistence and degradability

| **Ingredient** | **Persistence: Water/Soil** | **Persistence: Air** |
|---|---|---|
| | No Data available for all ingredients | No Data available for all ingredients |

### Bioaccumulative potential

| **Ingredient** | **Bioaccumulation** |
|---|---|
| | No Data available for all ingredients |

### Mobility in soil

| **Ingredient** | **Mobility** |
|---|---|
| | No Data available for all ingredients |

## SECTION 13 Disposal considerations

### Waste treatment methods

| | |
|---|---|
| **Product / Packaging disposal** | ‣ Recycle wherever possible or consult manufacturer for recycling options.<br>‣ Consult State Land Waste Management Authority for disposal.<br>‣ Bury residue in an authorised landfill.<br>‣ Recycle containers if possible, or dispose of in an authorised landfill. |

**Continued...**

## SECTION 14 Transport information

### Labels Required

| | |
|---|---|
| **Marine Pollutant** |  |
| **HAZCHEM** | Not Applicable |

### Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

### Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

| Product name | Group |
|---|---|
| glyphosate mono-ammonium salt | Not Available |

### Transport in bulk in accordance with the ICG Code

| Product name | Ship Type |
|---|---|
| glyphosate mono-ammonium salt | Not Available |

## SECTION 15 Regulatory information

### Safety, health and environmental regulations / legislation specific for the substance or mixture

**glyphosate mono-ammonium salt is found on the following regulatory lists**

| | |
|---|---|
| Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals | Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5 |

### National Inventory Status

| National Inventory | Status |
|---|---|
| Australia - AIIC / Australia Non-Industrial Use | No (glyphosate mono-ammonium salt) |
| Canada - DSL | No (glyphosate mono-ammonium salt) |
| Canada - NDSL | No (glyphosate mono-ammonium salt) |
| China - IECSC | Yes |
| Europe - EINEC / ELINCS / NLP | No (glyphosate mono-ammonium salt) |
| Japan - ENCS | No (glyphosate mono-ammonium salt) |
| Korea - KECI | Yes |
| New Zealand - NZIoC | Yes |
| Philippines - PICCS | No (glyphosate mono-ammonium salt) |
| USA - TSCA | No (glyphosate mono-ammonium salt) |
| Taiwan - TCSI | No (glyphosate mono-ammonium salt) |
| Mexico - INSQ | No (glyphosate mono-ammonium salt) |
| Vietnam - NCI | Yes |
| Russia - FBEPH | No (glyphosate mono-ammonium salt) |
| ***Legend:*** | *Yes = All CAS declared ingredients are on the inventory*<br>*No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.* |

**Continued...**

## SECTION 16 Other information

| | |
|---|---|
| **Revision Date** | 10/12/2021 |
| **Initial Date** | 02/08/2011 |

### SDS Version Summary

| Version | Date of Update | Sections Updated |
|---|---|---|
| 3.1 | 01/11/2019 | One-off system update. NOTE: This may or may not change the GHS classification |
| 4.1 | 10/12/2021 | Classification change due to full database hazard calculation/update. |

### Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC－TWA: Permissible Concentration-Time Weighted Average
PC－STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
ES: Exposure Standard
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index
AIIC: Australian Inventory of Industrial Chemicals
DSL: Domestic Substances List
NDSL: Non-Domestic Substances List
IECSC: Inventory of Existing Chemical Substance in China
EINECS: European INventory of Existing Commercial chemical Substances
ELINCS: European List of Notified Chemical Substances
NLP: No-Longer Polymers
ENCS: Existing and New Chemical Substances Inventory
KECI: Korea Existing Chemicals Inventory
NZIoC: New Zealand Inventory of Chemicals
PICCS: Philippine Inventory of Chemicals and Chemical Substances
TSCA: Toxic Substances Control Act
TCSI: Taiwan Chemical Substance Inventory
INSQ: Inventario Nacional de Sustancias Químicas
NCI: National Chemical Inventory
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

**end of SDS**