

Safety Data Sheet



Product: **EASY U-Sol**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name INCITEC PIVOT LIMITED
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Synonym(s) 13100 - PRODUCT CODE • Fertiliser Solution • Nitrogen Solution • Urea Liquor • EASY Liquid
Use(s) FERTILISER • INDUSTRIAL APPLICATIONS • LIVESTOCK SUPPLEMENT • NUTRIENT SCAVENGER
SDS Date 28/4/2010

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA
NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

| | | | | | |
|----------|----------------|-----------------|----------------|-----------|----------------|
| UN No | None Allocated | Hazchem Code | None Allocated | Pkg Group | None Allocated |
| DG Class | None Allocated | Subsidiary Risk | None Allocated | EPG | None Allocated |

3. COMPOSITION / INFORMATION ON INGREDIENTS

| Ingredient | Formula | Conc | CAS No |
|------------|------------------------------------|-----------|-----------|
| Urea | (NH ₂) ₂ CO | 35 - 55% | 57-13-6 |
| Water | H ₂ O | Remainder | 7732-18-5 |

4. FIRST AID MEASURES

Eye May cause short term irritation to the eyes. If eye contact occurs, rinse immediately with copious quantities of water and continue for another 15 minutes. Seek medical attention if symptoms persist.

Inhalation Inhalation of aerosol may cause irritation to the respiratory tract and lungs. Leave area and rest until recovered. Seek medical attention if symptoms persist

Skin Prolonged contact may irritate the skin. Remove contaminated clothing and gently flush affected areas with water. Seek medical attention if irritation develops. Launder clothing before reuse.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor. Call a physician immediately if swallowed in large quantities. Rinse mouth and drink plenty of water. Do not induce vomiting unless directed by the physician.

Advice to Doctor Treat symptomatically

First Aid Facilities Eye wash facilities and safety shower are recommended

5. FIRE FIGHTING MEASURES

Flammability Non flammable. No fire or explosion hazard exists
Fire and Explosion Non flammable. No fire or explosion hazard exists
Extinguishing Non flammable
Haxchem Code None Allocated

This product is neither flammable nor combustible. If caught in a fire or exposed to extreme heat the water will boil away. The active ingredient urea has a melting point of 133^o C. If urea is heated to decomposition toxic gases will evolve including carbon dioxide, carbon monoxide, nitrogen oxides, ammonia and cyanuric acid. Under such circumstances evacuate the area. Fire fighters should wear appropriate protective equipment including self contained breathing apparatus (SCBA).

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6. ACCIDENTAL RELEASE MEASURES

Spillage Refer to Section 8 (Exposure Controls/Personal Protection) for details on protective equipment. Exercise caution as the spill site may be slippery.

Stop leak if possible to do so without risk to prevent further discharge.

Pump liquid from bunds into undamaged storage tanks and containers. Rinse concrete areas afterwards and collect rinse water for disposal. Do not allow rinse water to enter bores, wells, sewers, stormwater drains and watercourses.

If the area is not bunded and the leak can not be stopped and/or liquid is flowing from site, construct a dam or earthen bund to prevent liquid product entering stormwater drains or watercourses. Pump up spilled liquid.

Use absorbent inert material, e.g. sand, soil or sawdust, to soak up residual liquid. Scrape or sweep into piles and cover with a water-proof tarpaulin or place in appropriate labelled containers awaiting disposal.

Refer to Section 13 (Disposal Considerations).

Plant growth in heavily contaminated soil may be adversely affected due to the over-application of nitrogen. Regrowth may not occur for an extended period of time. Run-off or the leaching of urea and its breakdown products (ammonium and nitrate) from the contaminated area may contaminate surface and groundwater. In sensitive ecosystems it may be advisable to scrape up and remove contaminated topsoil.

7. STORAGE AND HANDLING

Storage Bunding of liquid storage areas is not a legal requirement as this product is not a Dangerous Good or a Hazardous Substance. It does, however, have the potential to cause environmental harm if lost to waterways (surface or groundwater). See Section 12 on "Ecological Information". Bunding of large storage tanks and storage areas in close proximity to drains and watercourses is recommended.

When choosing a storage tank, consideration must be given to the corrosiveness of all fertiliser solutions that may be stored in the tank. Stainless steel, poly or mild steel tanks are recommended. Mild steel tanks should preferably be coated internally to reduce corrosion. See Section 10 (Stability and Reactivity) for comments on corrosivity to metals.

Concentrated solutions can salt out at low temperatures, e.g. during winter. Store Intermediate Bulk Containers (IBCs) under cover in a building rather than in the open when and where this is likely to occur. The life of IBCs is also extended when they are stored under cover so as to keep exposure to direct sunlight to a minimum.

Salt out temperatures depend on the urea concentration, as illustrated below:

| Urea Concentration (w/w%) | Crystallisation "Salt Out" Temperature (Degrees Celsius) |
|------------------------------|---|
| 35% | -7 |
| 45% | 7 |
| 50% | 16 |
| 55% | 27 |

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This product when stored in a confined, unventilated space/hold can give off ammonia or other odour and lead to the depletion of oxygen within this space and other confined spaces. It is therefore essential that ventilation is carried out prior to entry to all ship holds.

Store so that contamination with or of acids, oxidising agents, e.g. hypochlorite, farm chemicals, e.g. insecticides, fungicides and herbicides, and foodstuffs is avoided.

Handling Before use, read the product label, including sections on "Safety Directions" and "Care of Equipment". Keep out of reach of children. Use safe work practices and observe good personal hygiene. Avoid contact with eyes, skin and clothing. If mists are generated, ensure area is ventilated and mist inhalation is avoided. See Section 8 for details on PPE. Wash hands before eating.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation Ensure adequate natural ventilation.

PPE The selection of Personal Protective Equipment (PPE) should be based on a Risk Assessment of the task being performed and level of exposure. Normal work clothing may suffice where contact with the product is limited under well ventilated conditions where occupational exposure limits are not exceeded.

Where skin and eye contact may occur and for individuals with sensitive skin, wear ankle length and long sleeved clothing or overalls and safety glasses with side shields. Wear splash-proof goggles, impervious PVC or rubber gloves and rubber boots in high risk situations.

This product has low volatility and toxicity so respiratory protection is not normally required. Where light mists are generated and exposure is low, wear a dust/mist mask.

Where significant mists are generated and ventilation is inadequate, use a properly fitted particulate filter respirator, either full face-piece or half mask plus goggles, that meets Australian Standards AS/NZS 1715 and AS/NZS 1716 "Selection, use and maintenance of respiratory protective devices".

In risk situations, locate an eyewash station and safety shower nearby.

Wash splashed liquid from hands and exposed skin. Remove contaminated clothing and thoroughly wash the affected area.

Wash contaminated clothing and other protective equipment before storage or reuse.

Ensure all PPE conforms to the relevant Australian Standards. Read the labels on the PPE.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|-------------------|-------------------------|---------------------------|----------------|
| Appearance | Clear to hazy liquid | Solubility (water) | Miscible |
| Odour | Slight ammoniacal odour | Specific Gravity | 1.11 (35% w/w) |
| | | | 1.13 (45% w/w) |
| | | | 1.14 (50% w/w) |
| | | | 1.15 (55% w/w) |

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| | | | |
|-------------------------|--------------------------|------------------------------|---------------|
| pH | 10.1 (45% Urea Solution) | % Volatiles | Not available |
| Vapour pressure | Not available | Flammability | Not flammable |
| Vapour Density | Not available | Flash Point | Not relevant |
| Melting Point | Not available | Upper Explosion Limit | Not relevant |
| Boiling point | > 100 deg C | Lower Explosion Limit | Not relevant |
| Evaporation Rate | Not available | Autoignition Temp | Not available |

10. STABILITY AND REACTIVITY

Reactivity Urea solutions are stable under normal storage and handling conditions.

Urea is reactive with halogens. It may react explosively with hypochlorite bleach by forming nitrogen trichloride.

Urea is slightly reactive with oxidizing agents, reducing agents, acids, and alkalis; and non-reactive with combustible materials, organic materials, and most metals.

Urea solutions are non-corrosive to stainless steel, slightly corrosive to mild steel and corrosive to many alloys.

Decomposition Products If heated to decomposition after driving off the water, toxic gases may evolve. These gases include carbon dioxide, carbon monoxide, nitrogen oxides (NO_x), ammonia and cyanuric acid. Do not breathe smoke or fumes. Wear suitable protective equipment.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary Low to moderate toxicity - irritant. This product may present a hazard with direct eye contact, prolonged and repeated skin contact or with vapour inhalation at high levels.

Ingestion may cause nausea and vomiting. Chronic effects are not anticipated. Avoid accidental ingestion and contamination of drinking water. Clean up spills promptly.

Eye Low to moderate irritant. Exposure may result in irritation, pain and redness

Inhalation Low irritant. Over exposure may result in mucous membrane irritation of the nose and throat with coughing.

Skin Low to moderate irritant. Prolonged and repeated contact may result in irritation, skin rash and dermatitis

Ingestion Low to moderate toxicity. Ingestion may result in nausea, vomiting, gastrointestinal irritation and diarrhoea.

Toxicity Data For the constituent UREA (57-13-6)
LD50 (Ingestion): 8471 mg/kg (rat)
LD50 (Intraperitoneal): > 5000 mg/kg (rat)
LD50 (Intravenous): 4600 mg/kg (mouse)
LD50 (Subcutaneous): 8200 mg/kg (rat)
LDLo (Intraperitoneal): 6608 mg/kg (mouse)
LDLo (Intravenous): 4800 mg/kg (rabbit)
LDLo (Subcutaneous): 3000 mg/kg (rabbit)

The urea concentration will vary with the product but is typically around 50%, so LD50 figures will be about twice those listed above

Farm Use Urea can be toxic to livestock, pets and wildlife. As little as 0.25 g/kg live weight can kill cattle not previously adapted to its use as a non-protein nitrogen dietary supplement.

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Should livestock poisoning occur, vinegar (acetic acid) needs to be administered at quite high dose rates (as a guide, 2 to 4 litres for cattle), repeating the treatment if necessary. The vinegar makes the ruminal contents more acidic and delays the uptake of ammonia by the blood.

Death from urea poisoning is rapid (generally within 2 hours of ingestion of the urea) and often by the time the symptoms appear (severe abdominal pain, shivering, excessive salivation, rapid breathing, unstable gait, bellowing and bloat), it is too late. To have any chance of being effective, treatment must be quick.

12. ECOLOGICAL INFORMATION

Environment Avoid contaminating waterways. Nitrogen fertilisers can stimulate weed and algal growth in static surface waters. Algae affect water quality and taste. With time urea will form ammonium and nitrate. Depending on the concentration and species, ammonium may be toxic to fish. Nitrate is susceptible to leaching and may contaminate groundwater. High nitrate concentrations may render water unsuitable for human and livestock consumption.

13. DISPOSAL CONSIDERATIONS

Beneficial reuse is the preferred disposal option.

If the solution has been recovered from a bund and has not been contaminated, it can be used for its intended purpose, i.e. as a nitrogen fertiliser or a non-protein nitrogen supplement for livestock.

If contaminated with other fertilisers, the solution may still be used use it for its nutrient value in pasture, crops or on a recreational area, e.g. lawns and parks.

Apply to bare cultivated soil or direct the spray away from the foliage in established row crops. Seek professional advice before spraying on plant foliage as fertiliser solutions can burn plant leaves.

Sand and soil that has been used to soak up spilt liquid can also be spread for its nutrient value as a fertiliser.

Ensure the application rate is appropriate and fertiliser nutrients are not applied at too high a rate as this may set back plant growth or even kill plants. Do not empty waste into drains or allow it to flow into or contaminate watercourses.

If the waste (liquid or absorbent material) has been contaminated with other harmful materials, e.g. fuel, oil or chemicals, it must be disposed of in accordance with relevant local legislation. Contact the Waste Management Authority for advice.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Shipping Name None Allocated

| | | | | | |
|-----------------|----------------|------------------------|----------------|------------------|----------------|
| UN No | None Allocated | Hazchem Code | None Allocated | Pkg Group | None Allocated |
| DG Class | None Allocated | Subsidiary Risk | None Allocated | EPG | None Allocated |

15. REGULATORY INFORMATION

Poison Schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons

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(SUSDP).

AICS All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

EXPOSURE STANDARDS - TIME WEIGHTED AVERAGES: Exposure standards are established on the premise of an 8 hour work period of normal intensity, under normal climatic conditions and where a 16 hour break between shifts exists to enable the body to eliminate absorbed contaminants. In the following circumstances, exposure standards must be reduced: strenuous work conditions; hot, humid climates; high altitude conditions; extended shifts (which increase the exposure period and shorten the period of recuperation).

ABBREVIATIONS:

mg/m³ - Milligrams per cubic metre

ppm - Parts Per Million

TWA/ES - Time Weighted Average or Exposure Standard.

CNS - Central Nervous System

NOS - Not Otherwise Specified

pH - relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and

14 is highly alkaline.

CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.

M - moles per litre, a unit of concentration.

IARC - International Agency for Research on Cancer.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

This report has been prepared by Incitec Pivot Limited in consultation with:

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It is based on information concerning the product which has been provided to RMT by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

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