

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Product name : AMS - Lock-N – Urea Blend
Product code : 31-0-0-14S
Product type : Dry Fertilizer Blend

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Agricultural application.

1.3. Supplier

Manufacturer

MacroSource, LLC
5 Skidaway Village Walk
Savannah, GA, 31411
USA

T 1-912-598-8392

SDS@MacroSource.com - www.MacroSource.com

1.4. Emergency telephone number

Emergency number : CHEMTREC 1 (800) 424-9300

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

Urea dust tested does not pose a credible dust explosion hazard at ambient temperature and pressure conditions.

GHS US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling

No labeling applicable

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

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according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012.

3.2. Mixtures

Name	Product identifier	%
Diammonium sulfate	CAS-No.: 7783-20-2	50 – 62
Urea	CAS-No.: 57-13-6	36 – 44
Urea, reaction products with formaldehyde	CAS-No.: 68611-64-3	0.74 – 0.90
Imidodicarbonic diamide	CAS-No.: 108-19-0	0.44 – 0.54
Water	CAS-No.: 7732-18-5	0.11 – 0.13

Comments : This Safety Data Sheet is not a guarantee of product specification or NPK value(s). NPK content is on specified sales orders, customer invoices, or product specification sheets obtained from the supplier.
All concentrations are in percent weight.

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : If skin irritation occurs: Wash skin with plenty of water. Obtain medical attention if irritation persists.

First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.

Symptoms/effects after skin contact : May cause skin irritation. Repeated exposure may cause skin dryness or cracking.

Symptoms/effects after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Symptoms/effects after ingestion : May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3. Immediate medical attention and special treatment, if necessary

Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : Do not use water jet.

5.2. Specific hazards arising from the chemical

Fire hazard : Products of combustion may include, and are not limited to: oxides of carbon. Sulfur oxides.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

For containment : Contain spill, then place in a suitable container. Minimize dust generation. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for cleaning up : Sweep or shovel spills into appropriate container for disposal. Avoid generating dust. Provide ventilation.

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke. Use only in well ventilated areas. Avoid generating and breathing dust. Good housekeeping is important to prevent accumulation of dust.

Hygiene measures : Wash contaminated clothing before reuse. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep out of the reach of children. Keep container tightly closed. Store in a dry, cool and well-ventilated place.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

AMS - Lock-N - Urea

No additional information available

Urea (57-13-6)

USA - AIHA - Occupational Exposure Limits

WEEL TWA	10 mg/m ³
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Imidodicarbonic diamide (108-19-0)

No additional information available

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Urea, reaction products with formaldehyde (68611-64-3)

No additional information available

Water (7732-18-5)

No additional information available

Diammonium sulfate (7783-20-2)

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Wear suitable gloves. Consult glove manufacturer's product information on material suitability and material thickness.

Eye protection:

Safety glasses or goggles are recommended when using product.

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. SDSs cannot provide detailed and complete respiratory protection guidelines. Selection of respiratory protection must be done by a qualified person who has assessed the work environment.

Other information:

Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Granules.
Color	: No data available
Odor	: No data available
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not flammable.
Vapor pressure	: No data available
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Density	: 7.15 – 7.56 lb/gal
Solubility	: No data available
Partition coefficient n-octanol/water	: No data available

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Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Heat. Incompatible materials.

10.5. Incompatible materials

Strong oxidizers.

10.6. Hazardous decomposition products

May include, and are not limited to: oxides of carbon. Sulfur oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Urea (57-13-6)	
LD50 oral rat	8471 mg/kg
ATE US (oral)	8471 mg/kg body weight
Imidodicarbonic diamide (108-19-0)	
LD50 oral rat	14300 – 15000 mg/kg
ATE US (oral)	14300 mg/kg body weight
Urea, reaction products with formaldehyde (68611-64-3)	
LD50 oral rat	> 2000 mg/kg body weight Animal: rat, Animal sex: female, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method)

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Water (7732-18-5)	
LD50 oral rat	> 90 ml/kg
Diammonium sulfate (7783-20-2)	
LD50 oral rat	2840 mg/kg
LD50 dermal rat	> 2000 mg/kg
ATE US (oral)	2840 mg/kg body weight
Skin corrosion/irritation	: Not classified
Urea (57-13-6)	
pH	7.2 (conc: 10 % (aqueous solution))
Serious eye damage/irritation	: Not classified
Urea (57-13-6)	
pH	7.2 (conc: 10 % (aqueous solution))
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Diammonium sulfate (7783-20-2)	
NOAEL (chronic,oral,animal/male,2 years)	256 mg/kg body weight Animal: rat, Animal sex: male, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies), Remarks on results: other:Effect type: toxicity (migrated information)
NOAEL (chronic,oral,animal/female,2 years)	284 mg/kg body weight Animal: rat, Animal sex: female, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies), Remarks on results: other:Effect type: toxicity (migrated information)
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: May cause skin irritation. Repeated exposure may cause skin dryness or cracking.
Symptoms/effects after eye contact	: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/effects after ingestion	: May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Other information	: Likely routes of exposure: ingestion, inhalation, skin and eye.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : May cause long-term adverse effects in the aquatic environment.

Urea (57-13-6)	
LC50 - Fish [1]	16200 – 18300 mg/l (Exposure time: 96 h - Species: Poecilia reticulata)
EC50 - Crustacea [1]	3910 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
Urea, reaction products with formaldehyde (68611-64-3)	
EC50 - Crustacea [1]	> 150 mg/l Test organisms (species): Daphnia magna

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Urea, reaction products with formaldehyde (68611-64-3)	
EC50 72h - Algae [1]	70.6 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
EC50 72h - Algae [2]	> 100 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
Diammonium sulfate (7783-20-2)	
LC50 - Fish [1]	250 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
EC50 - Crustacea [1]	14 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 - Other aquatic organisms [1]	121.7 mg/l Test organisms (species): other:
LC50 - Fish [2]	480 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [flow-through])
EC50 - Crustacea [2]	169 mg/l Test organisms (species): Daphnia magna

12.2. Persistence and degradability

AMS - Lock-N - Urea	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

AMS - Lock-N - Urea	
Bioaccumulative potential	Not established.

Urea (57-13-6)	
BCF - Fish [1]	(10 dimensionless)
Partition coefficient n-octanol/water	< -1.73 (at 22 °C)

Urea, reaction products with formaldehyde (68611-64-3)	
Partition coefficient n-octanol/water	< 0 (at 20 °C (at pH 7))

Diammonium sulfate (7783-20-2)	
Partition coefficient n-octanol/water	-5.1 (at 25 °C)

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : No other effects known.

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

SECTION 14: Transport information

In accordance with DOT

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14.1. UN number

Not regulated for transport

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Not applicable

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : Not applicable

14.4. Packing group

Packing group (DOT) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

Special transport precautions : Do not handle until all safety precautions have been read and understood.

DOT

No data available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
Urea	57-13-6	Present	Active	
Imidodicarbonic diamide	108-19-0	Present	Active	
Urea, reaction products with formaldehyde	68611-64-3	Present	Active	
Water	7732-18-5	Present	Active	
Diammonium sulfate	7783-20-2	Present	Active	
Dimethyl sulfoxide	67-68-5	Present	Active	
Polyether	Trade Secret	Excluded	-	
Guanidine, cyano-	461-58-5	Present	Active	
Phosphorothioic triamide, butyl-	94317-64-3	Present	Active	PMN;S

15.2. International regulations

No additional information available

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15.3. US State regulations

California Proposition 65 - This product contains a chemical that is at or below California Propositions 65's "safe harbor level" as determined via a risk assessment. Therefore, the chemical is not required to be listed as a Prop 65 chemical on the SDS or label."

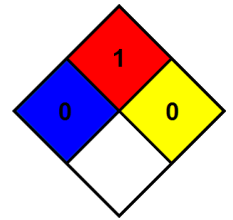
SECTION 16: Other information

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012.

Issue date : 06/06/2023
Revision date : 06/06/2023
Other information : None.
Prepared by : Nexreg Compliance Inc.
www.Nexreg.com



NFPA health hazard : 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.
NFPA fire hazard : 1 - Materials that must be preheated before ignition can occur.
NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating
Health : 0 Minimal Hazard - No significant risk to health
Flammability : 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)
Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Safety Data Sheet (SDS), USA

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