

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

1.1. Product identifier

Product form : Mixture
 Product name : Urea Ammonium Nitrate Solution (28 – 32% N)
 Synonyms : UAN Solution, Ammonium Nitrate Solution, Nitrogen Solution

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/preparation : Fertilizer, Industrial use

1.3. Details of the supplier of the safety data sheet

East Dubuque Nitrogen Fertilizers, LLC
 16675 Highway 20 West
 East Dubuque, IL 61025

T 815-747-3101

1.4. Emergency telephone number

Emergency number : 800-424-9300
 CHEMTREC

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Ox. Liq. 2 H272
 Skin Irrit. 2 H315
 Eye Irrit. 2A H319
 STOT SE 2 H371

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H272 - May intensify fire; oxidizer
 H315 - Causes skin irritation
 H319 - Causes serious eye irritation
 H371 - May cause damage to organs (blood)

Precautionary statements (GHS-US) : P210 - Keep away from open flames. - No smoking
 P220 - Keep/Store away from combustible materials
 P221 - Take any precaution to avoid mixing with combustible materials
 P260 - Do not breathe fume, mist, spray, vapors

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P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear eye protection, protective clothing, protective gloves
P302+P352 - IF ON SKIN: Wash with plenty of water
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P332+P313 - If skin irritation occurs: Get medical advice/attention
P337+P313 - If eye irritation persists: Get medical advice/attention
P362 - Take off contaminated clothing
P370+P378 - In case of fire: Use water spray for extinction. Use water in large amounts
P405 - Store locked up
P501 - Dispose of contents/container according to local, regional, national, and international regulations

2.3. Other hazards

Other hazards not contributing to the classification : Hazardous to the aquatic environment - Acute Hazard Category 3.
Harmful to aquatic life.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Ammonium nitrate	(CAS No.) 6484-52-2	40 - 47	Ox. Sol. 3, H272 Eye Irrit. 2B, H320 STOT SE 3, H335 STOT SE 2, H371
Urea	(CAS No.) 57-13-6	30 - 33	Skin Irrit. 2, H315 Eye Irrit. 2A, H319
Ammonia	(CAS No.) 7664-41-7	0 - 0.15	Flam. Gas 2, H221 Acute Tox. 3 (Inhalation: gas), H331 Skin Corr. 1B, H314
Water	(CAS No.) 7732-18-5	20 - 30	Not classified

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If medical advice is needed, have product container or label at hand.
First-aid measures after inhalation : If inhaled, remove to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Obtain medical attention if breathing difficulty persists.
First-aid measures after skin contact : Wash skin thoroughly with mild soap and water. Obtain medical attention if irritation develops or persists.
First-aid measures after eye contact : Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Obtain medical attention if irritation develops or persists.

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First-aid measures after ingestion : Do not induce vomiting. Seek medical attention if a large amount is swallowed. Get medical advice and attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Irritation to eyes, skin, and respiratory tract.
Symptoms/injuries after inhalation : Overexposure may be irritating to the respiratory system.
Symptoms/injuries after skin contact : May cause skin irritation.
Symptoms/injuries after eye contact : May cause eye irritation.
Symptoms/injuries after ingestion : If a large quantity has been ingested: Abdominal pain; Nausea; Vomiting; Diarrhea; Convulsions; Collapse
Chronic symptoms : Overexposure to this material may result in methemoglobinemia. Methemoglobinemia decreases the blood's ability to carry oxygen and results in symptoms such as dizziness, drowsiness, headache, shortness of breath, blue skin and lips, rapid heart rate, unconsciousness, and possibly death.

4.3. Indication of any immediate medical attention and special treatment needed

If medical advice is needed, have product container or label at hand. Symptoms may be delayed.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Not flammable but will support combustion.
Unsuitable extinguishing media : Dry chemical, carbon dioxide, regular foam, and salt water

5.2. Special hazards arising from the substance or mixture

Fire hazard : May cause or intensify fire; oxidizer. Under conditions of fire this material may produce: Ammonia; Nitrogen oxides; Nitric acid; Carbon monoxide; Cyanuric acid.
Reactivity : Stable at ambient temperature and under normal conditions of use.

5.3. Advice for firefighters

Firefighting instructions : Keep upwind. Under conditions of fire this material may produce: Nitrogen oxides.
Protection during firefighting : Wear full fire-fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).
Other information : Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Do not breathe fumes from fires or vapors from decomposition.

6.1.1. For non-emergency personnel

Protective equipment : Wear suitable protective clothing, gloves and eye/face protection.
Emergency procedures : Ventilate area. Evacuate unnecessary personnel.

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6.1.2. For emergency responders

- Protective equipment : Wear suitable protective clothing, gloves and eye/face protection.
- Emergency procedures : If possible, stop flow of product. Ventilate area. Evacuate unnecessary personnel.

6.2. Environmental precautions

Avoid release to the environment. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

6.3. Methods and material for containment and cleaning up

- For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
- Methods for cleaning up : Absorb and/or contain spill with inert material, then place in suitable container.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : When heated, material emits irritating fumes.
- Precautions for safe handling : Handle in accordance with good industrial hygiene and safety procedures. Avoid contact with skin and eyes. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
- Hygiene measures : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Do not store on wooden floor.
- Incompatible materials : Corrosive to brass, bronze, copper, and aluminium.
- Special rules on packaging : Keep container closed when not in use.

7.3. Specific end use(s)

Fertilizer

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No exposure limits were found for any of this product's components.

8.2. Exposure controls

Appropriate engineering controls : Ensure adequate ventilation, especially in confined areas.

Personal protective equipment :



Hand protection : Impermeable protective gloves.

Eye protection : Protective goggles.

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Skin and body protection	: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Wear suitable protective clothing. Wash contaminated clothing before reuse. Handle in accordance with good industrial hygiene and safety practice. Wash clothing frequently.
Respiratory protection	: Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of vapor or mist are expected to exceed exposure limits.
Environmental exposure controls	: Ensure adequate ventilation, especially in confined areas.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear
Color	: Colorless
Odor	: Odorless to slight ammonia-like
Odor threshold	: 25 ppm (Ammonia vapor)
pH	: 7 - 7.5
Relative evaporation rate (butyl acetate=1)	: < 1
Melting point	: No data available
Freezing point	: No data available
Boiling point	: 104.4 °C (220 °F)
Flash point	: No data available
Self ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 506.7 mm Hg (9.8 psi)
Relative vapor density at 20 °C (68 °F)	: No data available
Relative density	: 1.3 - 1.33 (water = 1)
Solubility	: Water: Miscible
Log Pow	: See Section 12.3
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: None known.
Oxidizing properties	: Ammonium nitrate is a strong oxidizer. It will contribute to the intensity of a fire by supplying oxygen and it will promote combustion of surrounding materials.
Explosive limits	: No data available

9.2. Other information

In solutions of 28 – 32% Urea Ammonium Nitrate, the salt out range is -17.8 °C - 0 °C (0 °F - 32 °F).

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SECTION 10: Stability and reactivity

10.1. Reactivity

Stable at ambient temperature and under normal conditions of use.

10.2. Chemical stability

Stable at standard temperature and pressure.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Keep away from heat and open flames.

10.5. Incompatible materials

Reducing agents, combustible materials, strong acids, halogens (F, Cl, Br, I), gold, silver, mercury, hypochlorites. copper and its alloys, aluminum alloys, galvanized surfaces, brass

10.6. Hazardous decomposition products

Under conditions of fire this material may produce: Nitrogen oxides; Ammonia; Carbon monoxide; Nitric acid; Cyanuric acid.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Ammonium nitrate (6484-52-2)	
LD50 oral rat	2217 mg/kg
LC50 inhalation rat (mg/l)	> 88.8 mg/l (Exposure time: 4 h)

Urea (57-13-6)	
LD50 oral rat	8471 mg/kg

Skin corrosion/irritation	: Causes skin irritation. pH: 7 - 7.5
Serious eye damage/irritation	: Causes serious eye irritation. pH: 7 - 7.5
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: May cause damage to organs (blood).
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Symptoms/injuries after inhalation	: Overexposure may be irritating to the respiratory system.

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Symptoms/injuries after skin contact	: May cause skin irritation.
Symptoms/injuries after eye contact	: May cause eye irritation.
Symptoms/injuries after ingestion	: If a large quantity has been ingested: Abdominal pain; Nausea; Vomiting; Diarrhea; Convulsions; Collapse
Chronic symptoms	: Overexposure to this material may result in methemoglobinemia. Methemoglobinemia decreases the blood's ability to carry oxygen and results in symptoms such as dizziness, drowsiness, headache, shortness of breath, blue skin and lips, rapid heart rate, unconsciousness, and possibly death.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Nitrate in streams and other bodies of water will promote over growth of algae and other plants.

Ammonium nitrate (6484-52-2)	
LC50 fish 1	65 - 85 mg/l (Exposure time: 48 h - Species: Cyprinus carpio [semi-static])
Urea (57-13-6)	
LC50 fish 1	16200 - 18300 mg/l (Exposure time: 96 h - Species: Poecilia reticulata)
EC50 Daphnia 1	> 10000 mg/l (Exposure time: 24 h - Species: Daphnia magna Straus)
EC50 Daphnia 2	3910 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

12.2. Persistence and degradability

Urea Ammonium Nitrate Solution (28 - 32% N)	
Persistence and degradability	Readily biodegradable in water. This product is water soluble and eventually biodegrades into elemental nitrogen. Excess nitrogen and nitrates in a body of water will contribute to eutrophication with visible effects such as toxic algae bloom.

12.3. Bioaccumulative potential

Ammonium nitrate (6484-52-2)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	-3.1 (at 25 °C)
Urea (57-13-6)	
BCF fish 1	
Log Pow	-1.59 (at 25 °C)

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Sewage disposal recommendations : Do not flush into surface water or sewer system.
- Waste disposal recommendations : Place in an appropriate container and dispose of the contaminated material at a licensed site.
- Additional information : Dispose of waste material in accordance with all local, regional, national, and international regulations.
- Ecology - waste materials : This material is highly water soluble. Landfills receiving this material should be equipped to contain leachate.

SECTION 14: Transport information

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Additional Information

DOT Reportable Quantity (RQ) : None

CHRIS Code : UAS

SECTION 15: Regulatory information

15.1. US Federal regulations

Urea Ammonium Nitrate Solution (28 - 32% N)	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Reactive hazard

Ammonium nitrate (6484-52-2)	
United States TSCA (Toxic Substances Control Act) inventory	Yes
EPCRA (SARA) § 313	Yes - 1.0 % de minimus concentration (reportable only when in aqueous solution, Chemical Category N511)
EPCRA (SARA) Threshold Planning Quantity (TPQ)	None
EPCRA (SARA) Reportable Quantity (RQ)	None
EPCRA(SARA) Extremely Hazardous Substance	No
CERCLA Reportable Quantity (RQ)	None
CERCLA Hazardous Substance	No

Urea (57-13-6)	
United States TSCA (Toxic Substances Control Act) inventory	Yes
EPCRA (SARA) § 313	No
EPCRA (SARA) Threshold Planning Quantity (TPQ)	None
EPCRA (SARA) Reportable Quantity (RQ)	None
EPCRA(SARA) Extremely Hazardous Substance	No
CERCLA Reportable Quantity (RQ)	None

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CERCLA Hazardous Substance

No

15.2. US State regulations

Ammonium nitrate (6484-52-2)

U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Delaware - Accidental Release Prevention Regulations - Sufficient Quantities
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Conc. - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Conc. - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

Urea (57-13-6)

U.S. - Minnesota - Hazardous Substance List
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

SECTION 16: Other information

Full text of H-phrases:

Acute Tox. 3 (Inhalation: gas)	Acute toxicity (inhalation: gas) Category 3
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Eye Irrit. 2B	Serious eye damage/eye irritation Category 2B
Flam. Gas 2	Flammable gases Category 2
Ox. Liq. 2	Oxidizing liquids Category 2
Ox. Sol. 3	Oxidizing solids Category 3
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 2	Specific target organ toxicity (single exposure) Category 2

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STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H221	Flammable gas
H272	May intensify fire; oxidizer
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H319	Causes serious eye irritation
H320	Causes eye irritation
H331	Toxic if inhaled
H335	May cause respiratory irritation
H371	May cause damage to organs

NFPA health hazard

: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard

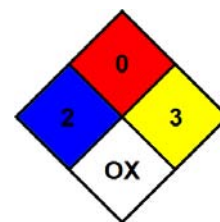
: 0 - Materials that will not burn.

NFPA reactivity

: 3 - Capable of detonation or explosive reaction, but requires a strong initiating source or must be heated under confinement before initiation, or reacts explosively with water.

NFPA specific hazard

: OX - This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.



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