

**1. Identification**

|   |   |
|---|---|
| <b>Product identifier</b>                                     | <b>Urea Ammonium Nitrate Solution</b>   |
| <b>Other means of identification</b>                          |   |
| <b>SDS Number</b>   | KF_UAN_US_EN  |
| <b>Synonyms</b>   | UAN 28% Nitrogen, UAN 30% Nitrogen, UAN 32% Nitrogen, UN-28, UN-30, UN-32, URAN, TRI-N-28, TRI-N-30, TRI-N-32, STCC 2871315.  |
| <b>Recommended use</b>  | Fertilizer.   |
| <b>Recommended restrictions</b>                               | None known.   |
| <b>Manufacturer/Importer/Supplier/Distributor information</b> |   |
| <b>Company Name</b>   | Koch Fertilizer, LLC<br>4111 E 37th Street North<br>PO Box 2219<br>Wichita, KS, 67201-2219<br>kochmsds@kochind.com<br>1-316-828-7672                                  |
| <b>Emergency</b>  | For Chemical Emergency<br>Call CHEMTREC day or night<br>1.800.424.9300<br>Mexico - 1.800.681.9531<br>Outside USA/Canada<br>1.703.527.3887<br>(collect calls accepted) |

**2. Hazard(s) identification**

|  |  |
|--|--|
| <b>Physical hazards</b>                          | Not classified.  |
| <b>Health hazards</b>                            | Not classified.  |
| <b>OSHA defined hazards</b>                      | Not classified.  |
| <b>Label elements</b>                            |  |
| <b>Hazard symbol</b>                             | None.  |
| <b>Signal word</b>                               | None.  |
| <b>Hazard statement</b>                          | The mixture does not meet the criteria for classification.                     |
| <b>Precautionary statement</b>                   |  |
| <b>Prevention</b>                                | Observe good industrial hygiene practices.                                     |
| <b>Response</b>                                  | Wash hands after handling.   |
| <b>Storage</b>                                   | Store away from incompatible materials.  |
| <b>Disposal</b>                                  | Dispose of waste and residues in accordance with local authority requirements. |
| <b>Hazard(s) not otherwise classified (HNOC)</b> | None known.  |
| <b>Supplemental information</b>                  | None.  |

**3. Composition/information on ingredients****Mixtures**

| <b>Chemical name</b> | <b>CAS number</b> | <b>%</b> |
|----------------------|-------------------|----------|
| Ammonium nitrate     | 6484-52-2         | 35 - 55  |
| Urea                 | 57-13-6           | 25 - 40  |
| Water                | 7732-18-5         | 15 - 32  |

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.  
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 supplier.

#### 4. First-aid measures

**Inhalation** Move person to fresh air. If the affected person is not breathing, apply artificial respiration. Get medical attention if discomfort develops or persists.

**Skin contact** Immediately flush skin with plenty of water. Get medical attention if irritation develops and persists.

**Eye contact** Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids wide apart. Get medical attention if irritation develops or persists.

**Ingestion** Rinse mouth thoroughly. Drink 1 or 2 glasses of water. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention.

**Most important symptoms/effects, acute and delayed** Symptoms include itching, burning, redness, and tearing of eyes.

**Indication of immediate medical attention and special treatment needed** Treat symptomatically.

**General information** Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

#### 5. Fire-fighting measures

**Suitable extinguishing media** Use fire-extinguishing media appropriate for surrounding materials.

**Unsuitable extinguishing media** None known.

**Specific hazards arising from the chemical** Slight fire hazard. When water evaporates from this product residues may contain ammonium nitrate, and solid ammonium nitrate when sensitized during decomposition may become unstable and explosive.

**Special protective equipment and precautions for firefighters** Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions** Move containers from fire area if you can do it without risk.

#### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures** Avoid inhalation of vapors and spray mist and contact with skin and eyes. Wear suitable protective clothing. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up** Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. After removal flush contaminated area thoroughly with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see Section 13 of the SDS.

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Do not contaminate water. Do not allow to enter drains, sewers or watercourses.

#### 7. Handling and storage

**Precautions for safe handling** Avoid inhalation of vapors/spray and contact with skin and eyes. Use only with adequate ventilation. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities** Keep container tightly closed. Store in a cool, dry, well-ventilated place. Store away from incompatible materials.

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Components              | Type | Value                          |
|-------------------------|------|--------------------------------|
| Ammonia (CAS 7664-41-7) | PEL  | 35 mg/m <sup>3</sup><br>50 ppm |

#### US. ACGIH Threshold Limit Values

| Components              | Type | Value  |
|-------------------------|------|--------|
| Ammonia (CAS 7664-41-7) | STEL | 35 ppm |
|                         | TWA  | 25 ppm |

#### US. NIOSH: Pocket Guide to Chemical Hazards

| Components              | Type | Value                          |
|-------------------------|------|--------------------------------|
| Ammonia (CAS 7664-41-7) | STEL | 27 mg/m <sup>3</sup><br>35 ppm |
|                         | TWA  | 18 mg/m <sup>3</sup><br>25 ppm |

#### US. Workplace Environmental Exposure Level (WEEL) Guides

| Components         | Type | Value                | Form               |
|--------------------|------|----------------------|--------------------|
| Urea (CAS 57-13-6) | TWA  | 10 mg/m <sup>3</sup> | Total particulate. |

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**Exposure guidelines** Follow standard monitoring procedures.

**Appropriate engineering controls** Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors and spray mist. Provide adequate general and local exhaust ventilation. Provide eyewash station.

#### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear approved safety glasses or goggles.

#### Skin protection

##### Hand protection

Chemical resistant gloves are recommended. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.

##### Other

Wear appropriate clothing to prevent repeated or prolonged skin contact.

##### Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Wear air supplied respiratory protection if exposure concentrations are unknown. In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment.

In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134 and ANSI Z88.2.

##### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

#### General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

### Appearance

**Physical state** Liquid.

**Form** Liquid.

**Color** Colorless.

**Odor** Slight ammonia.

**Odor threshold** Not available.

**pH** 6.8 - 8.5

**Melting point/freezing point** Not available.

**Initial boiling point and boiling range** 225 °F (107.22 °C)

|   |                     |
|---|---------------------|
| <b>Flash point</b>                                  | Not available.      |
| <b>Evaporation rate</b>                             | Not available.      |
| <b>Flammability (solid, gas)</b>                    | Not available.      |
| <b>Upper/lower flammability or explosive limits</b> |                     |
| <b>Flammability limit - lower (%)</b>               | Not available.      |
| <b>Flammability limit - upper (%)</b>               | Not available.      |
| <b>Vapor pressure</b>                               | Not available.      |
| <b>Vapor density</b>                                | Not available.      |
| <b>Relative density</b>                             | 1.05 - 1.35 @ 30 °C |
| <b>Solubility(ies)</b>                              |                     |
| <b>Solubility (water)</b>                           | 100%                |
| <b>Partition coefficient (n-octanol/water)</b>      | Not available.      |
| <b>Auto-ignition temperature</b>                    | Not available.      |
| <b>Decomposition temperature</b>                    | Not available.      |
| <b>Viscosity</b>                                    | Not available.      |
| <b>Other information</b>                            |                     |
| <b>Explosive properties</b>                         | Not explosive.      |
| <b>Oxidizing properties</b>                         | Not oxidizing.      |

## 10. Stability and reactivity

|   |   |
|---|---|
| <b>Reactivity</b>                         | Reacts violently with strong oxidants, nitrites, inorganic chlorides, chlorites and perchlorates causing fire and explosion hazard.   |
| <b>Chemical stability</b>                 | Stable under normal temperature conditions and recommended use.   |
| <b>Possibility of hazardous reactions</b> | Hazardous polymerization does not occur.  |
| <b>Conditions to avoid</b>                | Contact with incompatible materials. Heat, sparks, flames, elevated temperatures. UAN will form urea nitrate when mixed with nitric acid at low pH. Urea nitrate may become unstable and/or explosive under certain conditions. |
| <b>Incompatible materials</b>             | Reacts violently with strong oxidants, nitrites, inorganic chlorides, chlorites and perchlorates causing fire and explosion hazard.   |
| <b>Hazardous decomposition products</b>   | Carbon oxides. Nitrogen oxides (NOx). Ammonia. Biuret. Cyanide compounds.   |

## 11. Toxicological information

### Information on likely routes of exposure

|                     |  |
|---------------------|--|
| <b>Inhalation</b>   | Vapors and spray mist may irritate throat and respiratory system and cause coughing. |
| <b>Skin contact</b> | Prolonged or repeated skin contact may cause irritation.                             |
| <b>Eye contact</b>  | May cause eye irritation.  |
| <b>Ingestion</b>    | May cause discomfort if swallowed.   |

**Symptoms related to the physical, chemical and toxicological characteristics** Direct contact with eyes may cause temporary irritation. Symptoms can include irritation, redness, scratching of the cornea, and tearing.

### Information on toxicological effects

**Acute toxicity** May cause discomfort if swallowed.

| <b>Components</b>       | <b>Species</b> | <b>Test Results</b>             |
|-------------------------|----------------|---------------------------------|
| Ammonia (CAS 7664-41-7) |                |                                 |
| <b>Acute</b>            |                |                                 |
| <b>Inhalation</b>       |                |                                 |
| LC50                    | Rat            | 5.1 mg/l, 1 Hours               |
| <b>Oral</b>             |                |                                 |
| LD50                    | Rat            | 350 mg/kg as Ammonium hydroxide |

| Components  | Species  | Test Results         |
|---|--|----------------------|
| Ammonium nitrate (CAS 6484-52-2)                                      |  |                      |
| <b>Acute</b>  |  |                      |
| <b>Dermal</b>   |  |                      |
| LD50  | Rat  | > 5000 mg/kg         |
| <b>Inhalation</b>   |  |                      |
| <i>Dust</i>   |  |                      |
| LC50  | Rat  | > 88.8 mg/l, 4 Hours |
| <b>Oral</b>   |  |                      |
| LD50  | Rat  | > 2000 mg/kg         |
| Urea (CAS 57-13-6)  |  |                      |
| <b>Acute</b>  |  |                      |
| <b>Oral</b>   |  |                      |
| LD50  | Rat  | 14300 mg/kg          |
| <b>Skin corrosion/irritation</b>                                      | Prolonged skin contact may cause temporary irritation.   |                      |
| <b>Serious eye damage/eye irritation</b>                              | May cause eye irritation.  |                      |
| <b>Respiratory or skin sensitization</b>                              |  |                      |
| <b>Respiratory sensitization</b>                                      | Not a respiratory sensitizer.  |                      |
| <b>Skin sensitization</b>   | This product is not expected to cause skin sensitization.  |                      |
| <b>Germ cell mutagenicity</b>   | No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. |                      |
| <b>Carcinogenicity</b>  | This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.                                  |                      |
| <b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>         |  |                      |
| Not listed.   |  |                      |
| <b>NTP Report on Carcinogens</b>                                      |  |                      |
| Not listed.   |  |                      |
| <b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b> |  |                      |
| Not regulated.  |  |                      |
| <b>Reproductive toxicity</b>  | This product is not expected to cause reproductive or developmental effects.                                     |                      |
| <b>Specific target organ toxicity - single exposure</b>               | Not classified.  |                      |
| <b>Specific target organ toxicity - repeated exposure</b>             | Not classified.  |                      |
| <b>Aspiration hazard</b>  | Not an aspiration hazard.  |                      |
| <b>Chronic effects</b>  | Prolonged inhalation may be harmful.   |                      |

## 12. Ecological information

**Ecotoxicity** The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

| Components                       | Species | Test Results                                       |
|----------------------------------|---------|--|
| Ammonia (CAS 7664-41-7)          |         |  |
| <b>Aquatic</b>                   |         |  |
| Fish                             | LC50    | Chinook salmon ( <i>Oncorhynchus tshawytscha</i> ) |
| 0.43 - 0.47 mg/l, 96 hours       |         |  |
| Ammonium nitrate (CAS 6484-52-2) |         |  |
| <b>Aquatic</b>                   |         |  |
| <i>Acute</i>                     |         |  |
| Crustacea                        | EC50    | Daphnia magna                                      |
| 555 mg/l, 24 Hours               |         |  |
| Fish                             | LC50    | Oncorhynchus mykiss                                |
| > 100 mg/l, 96 Hours             |         |  |
| Urea (CAS 57-13-6)               |         |  |
| <b>Aquatic</b>                   |         |  |
| Fish                             | LC50    | Leuciscus idus                                     |
| > 6810 mg/l, 96 hours            |         |  |

**Persistence and degradability** No data available.  
**Bioaccumulative potential** No data available.  
**Partition coefficient n-octanol / water (log Kow)**  
 Urea (CAS 57-13-6) -2.11  
**Mobility in soil** This product is water soluble and may disperse in soil.  
**Other adverse effects** No data available.

### 13. Disposal considerations

**Disposal instructions** Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.  
**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.  
**Waste from residues / unused products** Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.  
**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied.

### 14. Transport information

**DOT**  
 Not regulated as dangerous goods.  
**IATA**  
 Not regulated as dangerous goods.  
**IMDG**  
 Not regulated as dangerous goods.  
**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not established.

### 15. Regulatory information

**US federal regulations** This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Ammonia (CAS 7664-41-7) LISTED

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - No  
 Delayed Hazard - No  
 Fire Hazard - No  
 Pressure Hazard - No  
 Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

| Chemical name | CAS number | Reportable quantity (pounds) | Threshold planning quantity (pounds) | Threshold planning quantity, lower value (pounds) | Threshold planning quantity, upper value (pounds) |
|---------------|------------|------------------------------|--------------------------------------|---|---|
| Ammonia       | 7664-41-7  | 100                          | 500                                  |   |   |

**SARA 311/312 Hazardous chemical** No

**SARA 313 (TRI reporting)**

| Chemical name    | CAS number | % by wt. |
|------------------|------------|----------|
| Ammonium nitrate | 6484-52-2  | 35 - 55  |

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Ammonia (CAS 7664-41-7)

**Safe Drinking Water Act (SDWA)** Not regulated.**US state regulations** This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.**US. Massachusetts RTK - Substance List**Ammonia (CAS 7664-41-7)  
Ammonium nitrate (CAS 6484-52-2)**US. New Jersey Worker and Community Right-to-Know Act**Ammonia (CAS 7664-41-7)  
Ammonium nitrate (CAS 6484-52-2)**US. Pennsylvania Worker and Community Right-to-Know Law**Ammonia (CAS 7664-41-7)  
Ammonium nitrate (CAS 6484-52-2)**US. Rhode Island RTK**

Ammonia (CAS 7664-41-7)

**International Inventories**

| Country(s) or region        | Inventory name   | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia                   | Australian Inventory of Chemical Substances (AICS)                     | Yes                    |
| Canada                      | Domestic Substances List (DSL)   | Yes                    |
| Canada                      | Non-Domestic Substances List (NDSL)                                    | No                     |
| China                       | Inventory of Existing Chemical Substances in China (IECSC)             | Yes                    |
| Europe                      | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes                    |
| Europe                      | European List of Notified Chemical Substances (ELINCS)                 | No                     |
| Japan                       | Inventory of Existing and New Chemical Substances (ENCS)               | Yes                    |
| Korea                       | Existing Chemicals List (ECL)  | Yes                    |
| New Zealand                 | New Zealand Inventory  | Yes                    |
| Philippines                 | Philippine Inventory of Chemicals and Chemical Substances (PICCS)      | Yes                    |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory                          | Yes                    |

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information, including date of preparation or last revision**

|                            |   |
|----------------------------|---|
| <b>Issue date</b>          | 31-January-2017   |
| <b>Revision date</b>       | -   |
| <b>Version #</b>           | 01  |
| <b>Further information</b> | HMIS® is a registered trade and service mark of the NPCA. |
| <b>HMIS® ratings</b>       | Health: 1<br>Flammability: 1<br>Physical hazard: 0        |

**NFPA ratings****List of abbreviations** EC50: Effective Concentration, 50%.  
LC50: Lethal Concentration, 50%.**References** EPA: Acquire database  
HSDB® - Hazardous Substances Data Bank

## Disclaimer

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Safety Data Sheet (SDS) and was prepared pursuant to Government regulation(s) that identify specific types of information to be provided. This SDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. Additional information may be needed to evaluate other uses of the product, including use of the product in combination with any materials or in any processes other than those specifically referenced. Information provided herein with respect to any hazards that may be associated with the product is not meant to suggest that use of the product in a given application will necessarily result in any exposure or risk to workers or the general public. No responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product. Purchasers and users assume all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. Purchasers and users of the product specifically should advise all of their employees, agents, contractors and customers who will use the product of this (M)SDS.