

SAFETY DATA SHEET**1. Identification**

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

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Serious eye damage/eye irritation	Category 2A
OSHA defined hazards	Not classified.	
Label elements		



Signal word	Warning	
Hazard statement	Causes serious eye irritation.	
Precautionary statement		
Prevention	Wash thoroughly after handling. Wear eye protection/face protection.	
Response	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. Take off contaminated clothing and wash it before reuse.	
Storage	Not assigned.	
Disposal	Not assigned.	
Hazard(s) not otherwise classified (HNOC)	None known.	
Supplemental information	None.	

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

Urea Ammonium Nitrate Solution
916058 Version #: 02 Revision date: 16-August-2023 Issue date: 31-January-2017

SDS US
1 / 8

Chemical name	CAS number	%
Ammonium nitrate	6484-52-2	35 - 55
Urea	57-13-6	25 - 40
Water	7732-18-5	15 - 32
Free Ammonia	7664-41-7	< 0.2

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 to fresh air. Call a physician if symptoms develop or persist.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters 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 so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. 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. Following product recovery, flush area 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 Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Avoid contact with eyes. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage,
including any incompatibilities

Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

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

Components	Type	Value
Free Ammonia (CAS 7664-41-7)	PEL	35 mg/m3
		50 ppm

US. ACGIH Threshold Limit Values (TLV)

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

NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended

Components	Type	Value
Free Ammonia (CAS 7664-41-7)	IDLH	15 %
		300 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Free Ammonia (CAS 7664-41-7)	STEL	27 mg/m3
		35 ppm
	TWA	18 mg/m3 25 ppm

US. OARS. Workplace Environmental Exposure Level (WEEL) Guide

Components	Type	Value	Form
Urea (CAS 57-13-6)	TWA	10 mg/m3	Total particulate.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear appropriate chemical resistant gloves.

Skin protection

Other

Wear suitable protective clothing.

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. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

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.

9. Physical and chemical properties

Appearance

Physical state

Liquid.

Form

Liquid.

Urea Ammonium Nitrate Solution

916058 Version #: 02 Revision date: 16-August-2023 Issue date: 31-January-2017

SDS US

3 / 8

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

10. Stability and reactivity

Reactivity	Reacts violently with strong oxidants, nitrites, inorganic chlorides, chlorites and perchlorates causing fire and explosion hazard.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	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.
Incompatible materials	Reacts violently with strong oxidants, nitrites, inorganic chlorides, chlorites and perchlorates causing fire and explosion hazard.
Hazardous decomposition products	Carbon oxides. Nitrogen oxides (NOx). Ammonia. Biuret. Cyanide compounds.

11. Toxicological information

Information on likely routes of exposure	
Inhalation	Prolonged inhalation may be harmful.
Skin contact	Prolonged or repeated skin contact may cause irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May be harmful if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
Information on toxicological effects	
Acute toxicity	May be harmful if swallowed.



Components	Species	Test Results
Ammonium nitrate (CAS 6484-52-2)		
Acute		
Dermal		
LD50	Rat	> 5000 mg/kg
Inhalation		
<i>Dust</i>		
LC50	Rat	> 88.8 mg/l, 4 Hours
Oral		
LD50	Rat	> 2000 mg/kg
Free Ammonia (CAS 7664-41-7)		
Acute		
Inhalation		
<i>Gas</i>		
LC50	Mouse	2940 mg/m3, 1 Hours
	Rat	5137 mg/m3, 1 Hours
Urea (CAS 57-13-6)		
Acute		
Oral		
LD50	Rat	14300 mg/kg
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.	
Serious eye damage/eye irritation	Causes serious eye irritation.	
Respiratory or skin sensitization		
Respiratory sensitization	Not a respiratory sensitizer.	
Skin sensitization	This product is not expected to cause skin sensitization.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	Not classifiable as to carcinogenicity to humans.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Ammonium nitrate (CAS 6484-52-2)	2A Probably carcinogenic to humans.	
NTP Report on Carcinogens		
Not listed.		
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)		
Not listed.		
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	Not classified.	
Aspiration hazard	Not an aspiration hazard.	
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.	

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	
Ammonium nitrate (CAS 6484-52-2)			
Aquatic			
<i>Acute</i>			
Crustacea	EC50	Daphnia magna	555 mg/l, 24 Hours
Fish	LC50	Oncorhynchus mykiss	> 100 mg/l, 96 Hours

Components	Species		Test Results
Free Ammonia (CAS 7664-41-7)			
Aquatic			
<i>Acute</i>			
Crustacea	EC50	Daphnia magna	25 mg/l, 48 Hours
Fish	LC50	Rainbow Trout	> 0.16 - < 0.37 mg/l, 96 Hours
<i>Chronic</i>			
Crustacea	NOEC	Daphnia magna	0.42 mg/l, 21 days
Fish	NOEC	Pink salmon (<i>Oncorhynchus gorboscha</i>)	1.2 mg/l, 21 days

Urea (CAS 57-13-6)

Aquatic

Algae	EC10	Algae	47 mg/l, 192 hours
Fish	LC50	Leuciscus idus	> 6810 mg/l, 96 hours
<i>Acute</i>			
Crustacea	LC50	Water flea (<i>Daphnia magna</i>)	> 10000 mg/l, 24 hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Free Ammonia (CAS 7664-41-7)	-2.66
Urea (CAS 57-13-6)	-2.11

Mobility in soil This product is water soluble and may disperse in soil.

Other adverse effects The product contains volatile organic compounds which have a photochemical ozone creation potential.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	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	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

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 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.

CERCLA Hazardous Substance List (40 CFR 302.4)

Free Ammonia (CAS 7664-41-7) Listed.

SARA 304 Emergency release notification

Ammonia; Ammonia (anhydrous) (CAS 7664-41-7) 100 LBS
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.

Toxic Substances Control Act (TSCA) All components of the mixture on the TSCA 8(b) inventory are designated "active".

Superfund Amendments and Reauthorization Act of 1986 (SARA)

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)
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Free Ammonia 7664-41-7 100 500

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Serious eye damage or eye irritation

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)

Free Ammonia (CAS 7664-41-7)

Safe Drinking Water Act (SDWA) Contains component(s) regulated under the Safe Drinking Water Act.

US state regulations

US. Massachusetts RTK - Substance List

Ammonium nitrate (CAS 6484-52-2)

Free Ammonia (CAS 7664-41-7)

US. New Jersey Worker and Community Right-to-Know Act

Ammonium nitrate (CAS 6484-52-2)

Free Ammonia (CAS 7664-41-7)

US. Pennsylvania Worker and Community Right-to-Know Law

Ammonium nitrate (CAS 6484-52-2)

Free Ammonia (CAS 7664-41-7)

US. Rhode Island RTK

Free Ammonia (CAS 7664-41-7)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Free Ammonia (CAS 7664-41-7)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	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

Country(s) or region	Inventory name	On inventory (yes/no)*
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

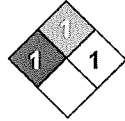
*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

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

Issue date	31-January-2017
Revision date	16-August-2023
Version #	02
HMIS® ratings	Health: 1 Flammability: 1 Physical hazard: 1

NFPA ratings



Disclaimer

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